16766.

The Marquis of Stafford.

S.
24-11-06
1661

I. T. Barber delin. *Isaac Taylor Junr. sculp.*

NARCISSUS.

From a Statue by Mr. Bacon.

16766

TRANSACTIONS

OF THE

SOCIETY

INSTITUTED AT LONDON,

FOR THE

ENCOURAGEMENT

OF

ARTS, MANUFACTURES, and COMMERCE;

WITH THE

PREMIUMS offered in the YEAR 1795.

VOL. XIII.

LONDON:

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To be had, by MEMBERS, of the REGISTER, at the SOCIETY'S HOUSE, in the ADELPHI; and sold by Messrs. DODSLEY, ROBSON, B. and J. WHITE, BECKET, JOHNSON, CADELL, ELMSLEY, WALTER, RICHARDSON, DEBRETT, SEWELL, and TAYLOR.

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M.DCC.XCV.

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PREFACE.

EVERY attentive Reader of the following pages will find, that the Society for the Encouragement of Arts, Manufactures and Commerce, have this year, in purſuance of their plan, offered ſeveral new Premiums, ſome of which it may not be altogether improper or unneceſſary to enumerate. As, under the head of AGRICULTURE, it had been ſuggeſted in a letter from an ingenious correſpondent, which is inſerted page 210, that the growing of Oak Timber in Compaſs-Forms for the uſe of Ship-builders, would tend very much to the advancement of their Art, and be of great benefit to the Navy of this country; a Premium has been offered for diſcovering

the moſt proper and advantageous method of obtaining wood, in the proper ſhapes, for the purpoſe intended, and which, there is good reaſon to believe, will hereafter be attended with very beneficial conſequences to the nation at large.

Another new object of the Society's attention has been the carrying into effect, what was ſuggeſted in ſome former volumes of theſe Tranſactions; the improving the ſtanding Fruit-trees in the Orchards of this kingdom. For this purpoſe, ſeveral Premiums are now offered (ſee Claſs 74 et ſeq.); and it is hoped, that when the wiſhes of the Society on this ſubject ſhall be realized, not only the ſtate and appearance of the Orchards, in different parts of this country, will be much amended, but the Fruits themſelves highly meliorated, and the buſineſs of the orchardiſt ſo arranged and ſettled, that a ſucceſſion of fine Fruit may be effectually ſecured.

The

The great ſcarcity of Grain, which unfortunately has taken place in every country in Europe, has occaſioned the Society to turn their thoughts towards ſuch plants as may be moſt likely to furniſh what might, in ſome degree, ſupply the place of Bread-corn: to this purpoſe, the Potatoe ſeems beſt adapted; and in order, as much as lies in the power of the Society, to forward an increaſed cultivation of that excellent plant, ſome new Premiums are this year offered, (ſee Claſs 96, 97) which, if effectually attended to, will probably be followed by ſome very conſiderable advantages to the Public in general, and to the induſtrious and laborious poor in particular.

In ſome parts of the kingdom, the practice of dibbling wheat has been carried to a conſiderable extent, and, as has been ſaid, with many material advantages. Premiums have for ſeveral years paſt been offered by the Society, though hitherto without any claimants appearing for them, to aſcertain the

comparative advantage of cultivating Wheat, by ſowing it in the broad-caſt way, or dibbling it in equidiſtant rows, hoeing the intervals (ſee Claſs 84). And this Seſſion, a Premium has been firſt offered for conſtructing a machine for dibbling corn, by which, if a ſimple machine, well adapted to the purpoſe, can be obtained, the price of labour in getting the ſeed into the ground, which has hitherto been conſidered as the principal objection to the practice, will be effectually obviated.

Under the head of CHEMISTRY, a new premium has this year been offered, for diſcovering a cheap and effectual method of purifying brackiſh Water, in new-made Wells, ſo as to bring it ſpeedily into a fit ſtate for the uſe of families. See Claſs 175.

It has already been obſerved, that the ſcarcity of Bread-corn, which has unfortunately taken place throughout all Europe, has induced the Society to endeavour to increaſe

creaſe the culture of that vegetable (the Potatoe) which ſeems beſt adapted to ſupply the place of wheat, as food; but there is another great conſumption of that grain, which the Society has endeavoured to leſſen, by offering a Reward for making Starch from the Fruit of the Horſe-cheſnut, under the head of Manufactures. As this fruit is conſidered of very little, if any, uſe; and a ſmall quantity of Starch, in fine powder prepared from it, has been produced to the Society; it has been judged a fit object for their attention; and accordingly, the premium, Claſs 207, has been offered. But, although a caution is given in the *Nota bene* ſubjoined to that advertiſement, warning all perſons who are not duly licenſed ſtarch-makers, from making any experiments on that ſubject, yet it may not be improper here again to mention, that the laws of exciſe are ſo ſevere on this head, that people cannot be too cautious how they infringe them, by attempting to make ſtarch of any material, or in any manner or place, unleſs ſtrictly

conformable to the ſeveral Acts of Parliament in force on that head.

When ſo many perſons are employed in the mineral countries of this kingdom, in ſearch of the ores, &c. with which it abounds, every attempt to leſſen the expence and labour of the proprietors and workmen muſt be judged laudable: it is for this reaſon that, under the head of Mechanicks, Claſs 224, will be found a Premium for diſcovering a cheap and more expeditious method of Boring Rocks in Mines than any now in practice; and to every one acquainted with the difficulty which frequently attends this operation, and the neceſſary charges incurred to the proprietors thereby, the endeavouring to obtain a more effectual mode of conducting this kind of work, will be conſidered as an object of very material importance to ſome of the moſt extenſive concerns in this country.

Having

Having thus enumerated the principal Premiums, which have not before this Seſſion been offered by the Society; there only remains to ſay on this head, that, in order ſtill further to encourage ingenuity, and to reward uſeful attention and deſert, the Society have this year added to their former rewards, ſeveral honorary Medals, and alſo increaſed, in many inſtances, their pecuniary Premiums; hereby ſhewing their determined intention to fulfil, by every means in their power, the views of their inſtitution.

Among the ſeveral letters and papers inſerted in this Volume, will be found an account of the planting Acorns, by Samuel Kilderbee, of Ipſwich, Eſq. with ſome judicious remarks on that ſubject. Accounts alſo of the plantations of Oſiers, by Lord Brownlow, John Phillips, Eſq. and Samuel Crawley, Eſq. are introduced; and here it may be highly proper to mention the occaſion that gave riſe, in the

Society,

Society, to the offering Premiums for increaſing the Plantations of Oſiers in this country.

Application was made to the Society, in the year 1794, by many of the principal Baſket-makers in and about London, ſaying, that, from the want of Oſier-twigs, great numbers of the working people were thrown out of employment, and the whole of their buſineſs almoſt at a ſtand. On enquiry, it appeared, that great quantities of theſe twigs had annually been imported from France; and all intercourſe with that country being ſtopped, a ſufficient quantity, the growth of England, could not be obtained: this induced the Society to offer ſuch Premiums as, it was thought, would be ſufficient and proper to encourage the further growth of that uſeful plant in our own country; more eſpecially as it appeared, from the evidence produced, that the culture of the proper kind of Oſiers on land well adapted to their growth, was

likely

likely to be very advantageous to the planter. And the event has fully juſtified the Society in their procedure; for it now appears, that not only a much larger quantity of Oſiers, the growth of England, has been within theſe two years brought to market; but there is reaſon to believe, the plantations are every where, on proper ſoils, increaſing; ſo that, in time, all neceſſity of importing them from foreign countries will ceaſe; and this will be more evident, when the great profit of ſuch plantations becomes more generally known.

One of the moſt favoured objects of the Society's attention, the planting Timber-trees, has this ſeſſion been gratified, by the account of the plantation made by Thomas Rawlinſon, Eſq. and this on land which, from its high and expoſed ſituation, as well as from the immenſe rocks of lime-ſtone that every where covered its ſurface, was not till very lately conſidered as meriting the attention of a cultivator; but which, from

from the preſent ſtate of the plantation, promiſes not only to be highly ornamental to the neighbouring country, but in due time very advantageous to the proprietor.

The papers of Mr. Henry Harper and Mr. John Jenkinſon, will, it is preſumed, afford much uſeful information on the ſubject of improving Waſte Land; and as the two ſorts of ſoil improved by theſe gentlemen differ moſt eſſentially from each other, the Public cannot fail of profiting by the obſervations made in the two Papers, as well as by thoſe of Mr. Middleton, as given in his letter on an improved courſe of Crops on Strong Land.

The ſamples of Rhubarb, grown and cured by Mr. Ball, of Williton, now give full aſſurance, that that uſeful drug may be cultivated and cured in England equally well as in any other climate or country whatever.

The

The preparing White Lead, of which very large quantities are employed in painting, glazing, &c. being a chemical operation, there is inſerted in this Volume, under the head of Chemiſtry, a plate and full deſcription of a method of preventing the ill effects of the duſt which ariſes in manufacturing the white lead, and is conſtantly ſo injurious to the workmen; and there is every reaſon to believe, that if the method here ſhewn is generally adopted and carried into execution, the far greater part of the danger to which they are expoſed will be removed. It may not be amiſs here to mention, that the ſecuring the health and lives of thoſe workmen who are engaged in mineral works, and who, from the nature of their employment, are ſubject to be injured by the fumes or duſt to which they are neceſſarily expoſed, has ever been conſidered as highly deſerving the Society's regard: hence, ſome years ſince, a reward was beſtowed, for the diſcovery of an apparatus, to prevent the miſ-

chief

chief ariſing to Water-gilders from the fumes of the quickſilver employed by them. Of this apparatus a complete model remains in the Society's Repoſitory, for the inſpection of the Public, as well as one, ſhewing the method invented by Mr. Ward, and practiſed by him, for ſecuring the workmen in the manufacturing of white lead.

Under the head of MANUFACTURES is inſerted, in this volume, an account of a further improvement in the conſtruction of the common Spinning-Wheel, by Mr. John Antis (ſee his former account, Vol. II, page 157): by the change of ſome parts of the mechaniſm, thoſe inaccuracies, that, from the conſtruction of the pinion, aroſe in the movement, are effectually obviated; the friction of the whole machine conſiderably abated; and the mode of adjuſting the velocity of the bobbin to the quantity of thread thereon, rendered more accurate; the general principle of moving the bobbin backward and forward, ſo as to lay the

the thread on it equally ſmooth from end to end, being ſtill retained; and by the introduction of the heart-ſhaped movement, the whole operation is carried on with much more exactneſs and preciſion than in any that have hitherto been produced to the Society.

As, on the improvement of mechanical Engines, the advancement of the Manufactures, and ultimately the Arts and Commerce, of the Kingdom, muſt in a very material manner depend; the Society have, from the time of their inſtitution, invariably endeavoured, by every means in their power, to bring forward to public uſe and notice, all ſuch machines as have a tendency to promote that end: from this has ariſen the great number of Machines and Models, that are reſerved in their Repoſitories, which being open to the free and uninterrupted examination of all perſons, it is well known great advantages have ariſen, as well to the ingenious workmen, as to the learned

and ſcientific obſervers: and from hence, although the far greater number of theſe machines and models, being the firſt thoughts of the inventors, are not in ſuch perfection as they have been brought to by other ingenious perſons who have inſpected them; yet they have undoubtedly ſerved the purpoſe intended by the Society, of furniſhing hints for the improving and perfecting the Mechanick Arts in this Country; and of this many inſtances are well known. In purſuance, therefore, of the intention of the Society to afford encouragement to all uſeful contrivances in the line of Mechanicks, it will be found by the following papers, that a Reward, under this head, has this ſeſſion been given to Mr. John Foulds, for his improved method of cutting Piles under Water, which, in the opinion of ſeveral of the beſt-informed perſons in this country, is new, ingenious, and well adapted to the purpoſe intended; and of which a Plate and Deſcription are inſerted in this volume;

and the model is alſo reſerved in the Society's Collection.

Whoever conſiders the ſolid advantages that have ariſen to the world at large, by the diſcovery of Printing, whereby learning and knowledge have been diſſeminated in a manner unknown in former ages, will readily agree, that every attempt to bring ſo valuable an art to the higheſt degree of perfection it is capable of, deſerves the moſt ſerious attention and liberal encouragement; and in the following pages will be ſeen a plate of an improved Printing-preſs, by Mr. Joſeph Ridley, with a deſcription of it: as the conſtruction of this machine differs very eſſentially from thoſe hitherto uſed for the ſame purpoſe, it will be highly acceptable to the Society, ſhould any one adopt preſſes of this conſtruction, to receive ſome well-authenticated accounts of ſuch further improvements (if any are thought neceſſary) as may be made in them, and of the advan-

tages that may result to the Art of Printing from the use of them; should any person wish for further information relative to the mechanism of this press than is to be found in the following pages, a working model is reserved in the house of the Society, which may at any proper time be inspected.

Here, too, will be found a plate and full description of a new-constructed Churn, and a Drag for two-wheeled Carts; both of which have, on trial, answered the intentions of the inventors.

In the other Classes, into which the business of the Society is divided, no papers have this session been received that have been judged proper for publication; but it may not be unsatisfactory to the Public to be informed, that in a letter from the Island of St. Vincent, addressed to General Melville, (†) and by him communicated

(†) The Botanical Garden, in the Island of St. Vincent, was founded in the year 1765, by Gene-

cated to the Society, there is the following paſſage: "General Melville will have "much pleaſure to hear, that the Bread-"fruit trees flouriſh ſo ſurpriſingly in the "Botanic Garden, that one tree has "brought two of the fruit to maturity, "and ſeveral more are bearing. They far "exceed our expectation in delicacy of "taſte (†); are throwing out many ſuckers, "and in a few years will be as plentiful as "in Otaheite. Many other plants, brought "by the Providence, Captain Bligh, have "produced flowers and fruit; but, next to "the Bread-tree, the Cheſnut appears to "be the moſt valuable."

ral Melville, when he was his Majeſty's Governor in Chief of St. Vincent, and the other ceded iſlands in the Weſt-Indies.

(†) By a ſubſequent letter it appears, that the trial of the Bread-Fruit above alluded to, was made, by eating it at the Governor of St. Vincent's public dinner, to celebrate Her Majeſty's birth-day on the 18th of January laſt.

In the Twelfth Volume of theſe Tranſactions, page 305, a full liſt of the ſeveral plants conveyed by Captain Bligh to the Iſlands in the Weſt Indies is given; and it is with ſingular ſatisfaction the Society obſerve, that after an interval of ſeventeen years, during all which time Premiums for the introduction of the Bread-fruit were offered, that deſirable object has at length been obtained; and it is now only to be hoped, that the diſturbances that have ariſen in ſome of thoſe iſlands will not injure ſo valuable an acquiſition.

Still further to promote the intereſts and welfare of the inhabitants of thoſe climates, the Society have now thought proper to offer Premiums for the culture of that tree (ſee Claſs 229), which there is every reaſon to believe will in time become of the greateſt benefit to the people in the iſlands of the Weſt Indies.

Having

Having thus expatiated pretty fully on the contents of the preſent Volume, it is no further neceſſary to lengthen this Preface, than to obſerve, that the print of the ſtatue of Narciſſus, which forms the frontiſpiece to the book, is executed by Mr. Iſaac Taylor, from the caſt of that ſtatue, preſented to the Society, by John Bacon, Eſq. R. A. after a drawing by Mr. John Thomas Barber, for which the Silver Medallion was adjudged to Mr. Barber, in conformity to the will of the late John Stock, of Hampſtead, Eſq. (ſee page 270.) The remainder of the Plates, which are more in number than in any preceding Volume, will, it is hoped, ſufficiently explain the ſeveral Models, &c. they are intended to repreſent; and nothing, therefore, further need be obſerved concerning them.

As the ſtate of the Finances of the Society are ſuch as to enable them to proſecute the intention of their inſtitution, and reward any merit that may come before them;

them; all ingenious perſons are invited to produce to the Society, ſuch works as may have a tendency to improve the Arts, the Manufactures, or Commerce of the kingdom, which will not fail to meet ſuch encouragement as they may be found to deſerve; and thereby the Candidates will obtain honour and profit to themſelves, with the ſolid ſatisfaction of having been the means of promoting the good and welfare of their native country, by contributing to the only permanent ſupport of it.

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PREMIUMS

OFFERED BY THE

SOCIETY

FOR THE ENCOURAGEMENT OF

ARTS, MANUFACTURES,

AND

COMMERCE,

IN

THE YEAR M.DCC.XCV.

TO THE

PUBLIC.

ADELPHI-BUILDINGS,
April 8, 1795.

THE chief objects of the attention of the Society for the Encouragement of Arts, Manufactures, and Commerce, in the application of their Rewards, are, Ingenuity in the ſeveral branches of the POLITE and LIBERAL ARTS, uſeful Diſcoveries and Improvements in AGRICULTURE, MANUFACTURES, MECHANICKS, and CHEMISTRY, or the laying open any ſuch to the Public; and, in general, all ſuch uſeful Inventions, Diſcoveries, or Improvements (though not mentioned in the Book of Premiums), as may appear to have a tendency to the advantage of Trade and Commerce. The Society therefore, in purſuance of their plan, propoſe to beſtow the following Premiums.

Premiums for Planting and Huſbandry.

Claſs 1. ACORNS. For having ſet, between the firſt of October, 1794, and the firſt of April, 1795, the greateſt quantity of land, not leſs than ten acres, with Acorns, with or without ſeeds, cuttings, or plants of other trees, at the option of the Candidate; and for effectually fencing and preſerving the ſame, in order to raiſe timber; the GOLD MEDAL.

2. For the ſecond greateſt quantity of land, not leſs than five acres, ſet agreeably to the above conditions, the SILVER MEDAL.

CERTIFICATES of ſetting agreeably to the above conditions, and that there are not fewer than three hundred young Oaks on each acre, to be delivered to the Society on or before the firſt Tueſday in November, 1795.

3, 4. The ſame premiums are extended one year further.

CERTI-

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1796.

5, 6. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1797.

7, 8. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1798.

9. RAISING OAKS. To the perſon who ſhall have raiſed, ſince the year 1791, the greateſt number of Oaks, not fewer than five thouſand, either from young plants, or acorns, in order to ſecure a ſucceſſion of oak timber in this kingdom; the GOLD MEDAL.

10. For the next greateſt number, not fewer than three thouſand, the SILVER MEDAL.

CERTIFICATES that there were on the land, upon the firſt of November, 1794, at leaſt the number of young Oak-trees required, in a thriving condition, with an account of the methods purſued in making and managing the plantation, to be produced to the Society on or before the firſt Tueſday in January, 1796.

11, 12. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in January, 1797.

13, 14. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in January, 1798.

15. ASCERTAINING THE BEST METHOD OF RAISING OAKS. To the perſon who ſhall aſcertain in the beſt manner, by actual experiments, the comparative merits of the different modes of raiſing

ſing Oaks for timber, either from acorns ſet on land properly grubbed and tilled; from acorns ſown at random among buſhes, fern, or other cover; or from young plants, previouſly raiſed in nurſeries, and tranſplanted; regard being had to the expence, growth, and other reſpective advantages of the ſeveral methods; the GOLD MEDAL.

The ACCOUNTS and proper CERTIFICATES to be produced to the Society on or before the firſt Tueſday in November, 1795.

16. The ſame premium is extended one year further. The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in November, 1796.

17. OAK TIMBER IN COMPASS FORMS. To the perſon who ſhall aſcertain, by actual experiments, the beſt method of training young Oaks, ſo as to form Compaſs Timber for Ship-building, the GOLD MEDAL, or FIFTY GUINEAS.

CERTIFICATES of the number of Oak-plants, not fewer than one hundred, that have been trained; and that they promiſe, in the opinion of perſons experienced in ſhip-building, to anſwer the purpoſe intended; to be delivered to the Society on or before the laſt Tueſday in December, 1805.

It is required that with the Certificates there be ſent particular accounts of the age of the trees, when they were begun to be trained, and the methods purſued in training them.

Should any perſon have already engaged in training Oaks for the above purpoſe, any information on the ſubject will be thankfully received by the Society.

18. CHESNUTS. For having ſown or ſet, between the firſt of October, 1794, and the firſt of April, 1795, the greateſt quantity of dry loamy land, not leſs than ſix acres, with Spaniſh Cheſnuts, with or without

without ſeeds, cuttings, or plants of other trees adapted to ſuch ſoil, at the option of the Candidate; and for effectually fencing and preſerving the ſame, in order to raiſe timber; the GOLD MEDAL.

19. For the ſecond greateſt quantity, not leſs than four acres, the SILVER MEDAL.

CERTIFICATES of ſowing or ſetting agreeably to the above conditions, and that there are not fewer than three hundred Cheſnut plants, in a thriving ſtate, on each acre, to be delivered to the Society on or before the firſt Tueſday in November, 1795.

20, 21. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the firſt Tueſday in November, 1796.

22, 23. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the firſt Tueſday in November, 1797.

24, 25. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the firſt Tueſday in November, 1798.

26. ELM. For having planted the greateſt number of the Engliſh Elm, not leſs than eight thouſand, between the twenty-fourth of June, 1793, and the twenty-fourth of June, 1794; and for the having effectually fenced and preſerved the ſame, in order to raiſe timber; the GOLD MEDAL.

27. For the ſecond greateſt number, not leſs than five thouſand, the SILVER MEDAL.

CERTIFICATES of the having planted agreeably to the above conditions, that the plants were in a healthy and thriving ſtate

two years at leaſt after making the plantation, and ſpecifying the diſtance of the plants, to be delivered to the Society on or before the firſt Tueſday in November, 1795.

28, 29. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1796.

30, 31, The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1797.

32, 33. The ſame premiums are extended one year further.

CERTIFICATES to be produced or or before the firſt Tueſday in November, 1798.

34. LARCH. For having planted out, between the twenty-fourth of June, 1792, and

and the twenty-fourth of June, 1793, the greateſt number of Larch-trees, not fewer than five thouſand; and for having effectually fenced and preſerved the ſame, in order to raiſe timber; the GOLD MEDAL.

35. For the next greateſt number, not fewer than three thouſand, the SILVER MEDAL.

CERTIFICATES of the number of plants, that they were in a healthy and thriving ſtate two years at leaſt after they were planted out, with a general account of the methods uſed in making the plantation, to be delivered to the Society on or before the laſt Tueſday in December, 1795.

36, 37. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1796.

38, 39. The ſame premiums are extended one year further.

CERTI-

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1797.

40, 41. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1798.

42, 43. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1799.

N. B. The Larch-trees may be either planted, mixed with other trees, or by themſelves, as may beſt ſuit the convenience of the planter.

44. SILVER FIR. For having planted out, between the twenty-fourth of June, 1791, and the twenty-fourth of June, 1792. in a mixed plantation of foreſt-trees, or ſeparate, according to the option of the Candidate, the greateſt number of Silver Firs,

Firs, not fewer than two thouſand; and for having effectually fenced and preſerved the ſame, in order to raiſe timber; the GOLD MEDAL.

45. For the next greateſt number, not fewer than one thouſand, the SILVER MEDAL.

CERTIFICATES of the number of plants, that they were in a healthy and thriving ſtate two years at leaſt after they were planted out, with a general account of the methods uſed in making the plantation, to be delivered to the Society on or before the laſt Tueſday in December, 1795.

46, 47. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1796.

48. 49. The ſame premiums are extended one year further.

CERTI-

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1797.

50. UPLAND OR RED WILLOW. For the greateſt number of acres, not leſs than three, planted before the end of April, 1793, with Upland or Red Willow, properly fenced and ſecured; the number of plants on each acre to be at leaſt twelve hundred; the GOLD MEDAL or THIRTY GUINEAS.

CERTIFICATES of the number of plants, and that they were in a thriving ſtate at the time of ſigning ſuch Certificates, to be produced to the Society on or before the laſt Tueſday in November, 1795.

It is well known that this ſpecies of Willow thrives well on dry ſandy land.

51. OSIERS. To the perſon who ſhall have planted, between the firſt of January and the firſt of May, 1795, the greateſt quantity of land, not leſs than three acres, with

with thoſe kinds of Willows, commonly known by the names of Oſier, Spaniard, or New-kind, fit for the purpoſe of baſket-makers, not fewer than twelve thouſand plants on each acre; the GOLD MEDAL or TWENTY GUINEAS.

52. For the ſecond greateſt quantity of land, not leſs than two acres, the SILVER MEDAL, or TEN GUINEAS.

CERTIFICATES of the planting, and that the plants were in a thriving ſtate five months at leaſt after the planting, to be produced on or before the laſt Tueſday in November, 1795.

53, 54. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in November, 1796.

55. ALDER. For having planted, in the year 1792, the greateſt number of Alders,

ders, not leſs than three thouſand, on an eſtate the property of one perſon; the GOLD MEDAL.

CERTIFICATES of the number of plants, and that they were in a thriving ſtate two years at leaſt after being planted, to be delivered to the Society on or before the laſt Tueſday in December, 1795.

56. The ſame premium is extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1796.

57. The ſame premium is extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1797.

58. The ſame premium is extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1798.

59. ASH. For having ſown or ſet, in the year 1792, the greateſt quantity of land, not leſs than ſix acres, with Aſh for timber, with or without ſeeds, cuttings, or plants of ſuch other trees as are adapted to the ſoil; the GOLD MEDAL.

60. For the next greateſt quantity, not leſs than four acres, the SILVER MEDAL.

CERTIFICATES of the ſowing or ſetting agreeably to the above conditions, that there are not fewer than one hundred Aſh plants on each acre, in a thriving and healthy condition, two years at leaſt after the ſowing or ſetting, with a general account of the methods uſed in making the plantation, to be delivered to the Society on or before the laſt Tueſday in December, 1795.

61, 62. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1796.

63, 64. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1797.

65, 66. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1798.

67, 68. The ſame premiums are extended one year further.

CERTIFICATES to be delivered on or before the laſt Tueſday in December, 1799.

69. TIMBER-TREES. To the perſon who ſhall have incloſed, planted, or ſown, the greateſt number of acres, not leſs than ten, with the beſt ſorts of Foreſt-trees adapted to the ſoil, for timber, between the firſt of October, 1791, and the firſt of May, 1793; the GOLD MEDAL.

An account of the methods uſed in making the plantations, and of the nature of the ſoil, together with proper Certificates that the trees were in a thriving and healthy ſtate two years at leaſt after making the plantation, to be delivered to the Society on or before the firſt Tueſday in November, 1795.

70. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in November, 1796.

71. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in November, 1797.

72. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in November, 1798.

N. B. With the above Foreſt-trees, the ſeeds, cuttings, or plants, of ſuch other trees as are adapted to the ſoil, and proper for underwood, may or may not be intermixed.

73. PLANTING BOGGY OR MORASSY SOILS. For an account of the beſt ſet of experiments ſent by the planter, or his repreſentative, to aſcertain the comparative advantages of planting boggy or moraſſy ſoils with White Poplar, Black Poplar, Lombardy Poplar, and Willow, the GOLD MEDAL, or THIRTY GUINEAS.

It is required that not leſs than half an acre be planted with each, and the plants to be not more than four feet aſunder.

It is alſo required that the plantation ſtand fourteen years, at the end of which to be all cut down and meaſured, or accurately meaſured ſtanding; the Certificates of the meaſure and value, and that the whole is properly fenced and ſecured, to be produced on or before the firſt Tueſday in January, 1796.

N. B. Any information relating to the ſtate of the plantation, if ſent to the Society between the time of planting, and claiming the premium, will be thankfully received.

74. PLANTING ORCHARDS. To the perſon who ſhall plant an Orchard after the month of Auguſt in the year 1796, in the moſt judicious manner, not leſs than four acres, the GOLD MEDAL, or FIFTY-GUINEAS.

75. For the next in merit, the SILVER MEDAL, or THIRTY GUINEAS.

The proof of the value of the improvement of the Orchard ſhall depend on the clear product of the greateſt quantity of fine marketable fruit, to be produced during three ſucceſſive years after the year 1812, and ſold at any public market in England or Wales. Each perſon who propoſes to become a Candidate for theſe Premiums muſt ſend an account of the number of trees, their culture, pruning, and every circumſtance which can in the leaſt throw any light upon the ſubject; which information will be regiſtered, with a view to form a ſyſtem of rational culture.

76. And that Gentlemen may be induced to come forward and make and preſerve ſuch plantations,—The perſon who can produce an ORCHARD which, at the end of three years after planting, ſhall ſhew the greateſt promiſe of ſucceſs, ſhall be entitled to the GOLD MEDAL, or THIRTY GUINEAS.

The merits of the two first-mentioned Premiums being to be ascertained by the fruit; the merit of the third Premium must be ascertained by the judicious number of trees planted, the straitness, clearness, and freedom of growth of the several trees; and that all the young branches run free, and at due distances from each other, without any galling or canker.

CERTIFICATES of the forming the Orchard, the soil and aspect of the plantation, the sale and product of the fruit for which the claims for the Premiums, Classes 74 and 75, are intended to be made, must be delivered to the Society on or before the first Tuesday in November, 1815; and the Certificate in claim of the Premium, Class 76, must be delivered to the Society on or before the first Tuesday in November, 1799.

N. B. However expert the Orchardist may be in general information and attention, much will depend on soil, exposure, culture, and an easy communication to convey the fruit

fruit to market; for every field, however valuable in other reſpects, may not be proper for an Orchard.

Any wood the Orchardiſt may chooſe to raiſe for ſhelter to ſuch plantation, is not to to be meaſured as part of the Orchard, as the wood will more than ſupport its own expence.

*** *The Candidates for planting all kinds of Trees are to certify, that the reſpective Plantations are properly fenced and ſecured, and particularly to ſtate the condition the Plants were in at the time of ſigning ſuch Certificates.*

Any information which the Candidates for the foregoing Premiums may chooſe to communicate, relative to the methods made uſe of in forming the Plantation, or promoting the growth of the ſeveral Trees, or any other obſervations that may have occurred on the ſubject, will be thankfully received.

77. SE-

77. SECURING PLANTATIONS OF TIMBER-TREES. To the perſon who ſhall give to the Society the moſt ſatisfactory Account, founded on experience, of the moſt effectual and leaſt expenſive method of ſecuring young plantations of Timber-trees, from Hares and Rabbits, as well as Sheep and larger cattle, which at the ſame time ſhall be leaſt ſubject to the depredations of wood-ſtealers, the SILVER MEDAL, or TWENTY GUINEAS.

The ACCOUNTS, and CERTIFICATES of the efficacy of the method, to be produced to the Society on or before the firſt Tueſday in November, 1795.

78. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in November, 1796.

79. TREES FOR USE WHEN EXPOSED TO THE WEATHER. To the perſon who ſhall ſend the moſt ſatisfactory account and certificate, verified by experiments, to determine which of the following trees is of the greateſt utility for timber or poles, for uſe, when expoſed to the weather, *viz.*

Larch,	Aſh,
Black Poplar,	Beech,
Spaniſh Cheſnut,	Silver Fir,
Willow,	Lombardy Poplar;
Alder,	

the GOLD MEDAL.

The ACCOUNTS and CERTIFICATES to be produced on or before the ſecond Tueſday in December, 1795.

80. PREVENTING THE BLIGHT ON FRUIT-TREES. To the perſon who ſhall diſcover to the Society the beſt and moſt effectual method of preventing the Blight on Fruit-trees, ſuperior to any hitherto known or practiſed, and verified by ac-

tual and comparative experiments, the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS, with proper CERTIFICATES, to be delivered to the Society on or before the ſecond Tueſday in November, 1796.

80.* The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the ſecond Tueſday in November, 1797.

81. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered on or before the ſecond Tueſday in November, 1798.

N. B. It is expected that the above-mentioned comparative experiments have been made during three ſucceſſive ſeaſons, and in the ſame aſpect and ſoil; and that, contiguous to them, other trees of the ſame kind

kind with thoſe for which the claim is made, have ſuffered in conſequence of the method not having been made uſe of to them.

82. COMPARATIVE CULTURE OF WHEAT. For the beſt ſet of experiments, made on not leſs than eight acres, four of which to be ſown broad-caſt, and four drilled, to aſcertain whether it is moſt advantageous to cultivate wheat by ſowing it in the common broad-caſt way, or by drilling it in equidiſtant rows, hoeing the intervals; the GOLD MEDAL, or the SILVER MEDAL and TWENTY GUINEAS.

It is required that an account of the expence attending each mode of culture, with proper CERTIFICATES of the nature and condition of the land on which the experiments are made, together with an account of the produce of the Corn, be produced to the Society on or before the firſt Tueſday in February, 1796.

83.

83. The ſame premium is extended one year further.

The ACCOUNTS, with CERTIFICATES, to be produced to the Society on or before the firſt Tueſday in February, 1797.

84. COMPARATIVE CULTURE OF WHEAT. For the beſt ſet of experiments, made on not leſs than eight acres of land, four of which to be ſown broad-caſt, and four dibbled, to aſcertain whether it is moſt advantageous to cultivate Wheat by ſowing it in the common broad-caſt way, or by dibbling in it in equidiſtant rows, hoeing the intervals; the GOLD MEDAL, or the SILVER MEDAL and THIRTY GUINEAS.

It is required that an account of the expence attending each mode of culture, with proper Certificates of the nature and condition of the land on which the experiments are made, together with an account of the produce of the Corn, be produced to the Society on or before the firſt Tueſday in February, 1796.

85. BEANS AND WHEAT. To the perſon who ſhall have planted or drilled between the firſt of December, 1793, and the firſt of April, 1794, the greateſt quantity of land, not leſs than ten acres, with Beans, and ſhall have ſown the ſame land with Wheat in the ſame year, 1794; TWENTY GUINEAS.

It is required that an account of the ſort and quantity of Beans, the time of planting or drilling, and of reaping or mowing them, the produce per acre threſhed, the application of the ſtraw, the expence of planting or drilling, hand or horſe hoeing, the diſtance of the rows, and the quality of the ſoil, together with CERTIFICATES of the number of acres, and that the land was actually ſown with Wheat in the year 1794, be produced on or before the firſt Tueſday in November, 1795.

N. B. The Society have been informed, that Beans may be drilled or planted ſo early as the month of December, from whence may be derived the advantage of an early

harveſt; in which caſe the ſtraw will be far more valuable than that from a later planting or drilling.

86. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the firſt Tueſday in November, 1796.

87. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the firſt Tueſday in November, 1797.

88. DRILL HUSBANDRY. To the perſon who, in the year 1795, ſhall have cultivated the greateſt quantity of land, not leſs than four hundred acres, under the Drill ſyſtem, the Wheat ſown in the autumn of the year 1794 included, the GOLD MEDAL.

An

An Account of the quality of the ſoil, the various crops, and of the times of drilling and hoeing, with CERTIFICATES of the quantity of land, and the general appearance of the crop, to be delivered on or before the third Tueſday in February, 1796.

89. TURNEPS. For the beſt account of experiments made on at leaſt ſix acres of land, to determine the comparative advantage of the drill or broad-caſt method in the cultivation of Turneps; the GOLD MEDAL, or the SILVER MEDAL and TEN GUINEAS.

The ACCOUNTS, with proper CERTIFICATES, to be delivered on or before the third Tueſday in April, 1796.

It is required that one half of the land be drilled, and the other half ſown broad-caſt.

90. VEGETABLE FOOD. For the beſt account, confirmed by experiments,

of the Vegetable Food (Cabbages and Turneps excepted), growing in the months of March and April, that will moſt increaſe the milk in Mares, Cows, and Ewes, at that ſeaſon; provided ſuch food can be cultivated at an expence that will admit of its being applied to the above purpoſes; the GOLD MEDAL, or the SILVER MEDAL and TEN GUINEAS.

CERTIFICATES to be produced on or before the ſecond Tueſday in November, 1795.

91. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the ſecond Tueſday in November, 1796.

92. TURNEP-ROOTED CABBAGE. For having raiſed, and duly cultivated, Turnep-rooted Cabbage, in the year 1794, for the feeding Cattle or Sheep, on the greateſt number of acres, not leſs than ten, and

giving an account of the ſoil, culture, expence, time and manner of feeding off, produce, and the effects on Cattle or Sheep fed with it; the GOLD MEDAL, or THIRTY GUINEAS.

93. For the next greateſt number of acres, not leſs than five, the SILVER MEDAL and TEN GUINEAS.

CERTIFICATES of the quantity of land, with the accounts, to be produced on or before the laſt Tueſday in October, 1795.

94, 95. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in October, 1796.

96. COMPARATIVE CULTURE OF POTATOES. To the perſon who ſhall produce to the Society, the moſt ſatisfactory account, verified by experiments, of

the comparative advantages of planting whole Potatoes, and hilling them up as they grow, and of the common method of planting Potatoes, by cuttings, on not leſs than one acre of land; the SILVER MEDAL, or TEN GUINEAS.

CERTIFICATES of the culture, expence, and produce, to be delivered to the Society on or before the third Tueſday in December, 1796.

97. INCREASED CULTURE OF POTATOES. To the perſon who ſhall, in the year 1795, cultivate the greateſt quantity of land, not leſs than twenty acres, with Potatoes, ſuch land not having been planted with Potatoes within the laſt ten years; the GOLD MEDAL, or FIFTY GUINEAS.

98. For the next greateſt quantity, not leſs than ten acres, the SILVER MEDAL, or TWENTY-FIVE GUINEAS.

CERTIFICATES of the quantity and nature of the ſoil, with full accounts of the method of culture, to be prodnced on or before the third Tueſday in January, 1796.

99. POTATOES FOR FEEDING CATTLE AND SHEEP. To the perſon who, in the year 1794, ſhall have cultivated the greateſt quantity of land, not leſs than four acres, with Potatoes, for the purpoſe of feeding Cattle and Sheep; the GOLD MEDAL, or THIRTY GUINEAS.

CERTIFICATES, with ſatisfactory Accounts of the expence and manner of cultivating the Potatoes, and the application of them to the above purpoſes only, and the ſucceſs that has attended the uſe of them, to be delivered to the Society on or before the ſecond Tueſday in November, 1795.

100. The ſame premium is extended one year further.

CERTIFICATES to be delivered on or before the ſecond Tueſday in November, 1796.

101. The ſame premium is extended one year further.

CERTIFICATES to be delivered on or before the ſecond Tueſday in November, 1797.

N. B. Should any Gentleman have already cultivated Potatoes for the purpoſes mentioned in the above advertiſement, any information from him on the ſubject will be thankfully received by the Society.

102. CULTIVATING ROOTS AND HERBAGE FOR FEEDING SHEEP, AND BLACK CATTLE. For the moſt ſatisfactory experiments, made between Michaelmas, 1794, and the firſt of May, 1795, in order to aſcertain which of the following plants can be cultivated and houſed, or otherwiſe ſecured for winter-fodder, to the greateſt advantage, *viz.*

Turnep-

Turnep-rooted Cabbage, Carrots,
Turnep Cabbage, Parſneps,
Turneps, Potatoes;
the GOLD MEDAL.

The ACCOUNTS, with proper Certificates, to be produced on or before the firſt Tueſday in November, 1795.

It is required that the above roots be taken off the land by the laſt day of October, 1794; that a crop of Wheat may be ſown in the ſame ground, and the particulars of the ſowing and planting, taking up, produce, preſerving, and application to the feeding Sheep and Black Cattle, be ſpecified. The comparative experiments muſt be made between two or more of any of the above-mentioned plants, and not leſs than one acre be cultivated with each particular kind of plant.

N. B. Great advantage will ariſe to the Farmer occupying land in the neighbourhood of extenſive commons, from the conveniency of keeping large flocks of Sheep,

and herds of Cattle, if the difficulty of ſupporting them through the winter was obviated by a due knowledge of this practice.

103. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1796.

104. STALL-FEEDING HORSES WITH GREEN VEGETABLES. To the perſon who ſhall keep the greateſt number of Horſes, not fewer than four, in the Stall or Stable, during the greateſt number of months in the year, on Carrots, Potatoes, Lucern, Saintfoin, Clover, Vetches, or any other green vegetable food raiſed on land in his own poſſeſſion; the SILVER MEDAL and TEN GUINEAS.

It is required that the number of horſes ſo fed, the quantity of land employed in raiſing the green vegetable food, the quantity

tity of hay and corn (if any) conſumed, the ſtate and condition of the horſes, an account of the work done by them, and of the quantity of dung obtained, as near as can be aſcertained, be fully and particularly ſpecified.

The ACCOUNTS and CERTIFICATES to be produced to the Society on or before the ſecond Tueſday in February, 1796.

105. MAKING HAY IN WET WEATHER. To the perſon who ſhall diſcover to the Society the beſt and cheapeſt method, ſuperior to any hitherto practiſed, of making Hay in wet weather, the GOLD MEDAL, or THIRTY GUINEAS.

A full Account of the method employed, and of the expence attending the proceſs, with not leſs than fifty-ſix pounds of the hay; and Certificates that at leaſt the produce of fifteen acres of land has been made according to the method deſcribed, and that the whole is of equal quality with the ſamples;

ſamples; to be produced to the Society on or before the firſt Tueſday in January, 1796.

106. The ſame premium is extended one year further.

The SAMPLES and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1797.

107. CULTIVATING THE TRUE RHUBARB. For having raiſed, before the end of the year 1795, the greateſt number of plants, not leſs than ſix hundred, of Rheum Palmatum, or true Rhubarb, the GOLD MEDAL.

108. For the next greateſt number, not leſs than four hundred plants, the SILVER MEDAL.

CERTIFICATES of the number of plants, that they ſtand at leaſt four feet aſunder, that they have been in a thriving ſtate during the preceding ſummer, with an account of

of the ſoil, culture, and aſpect, to be produced on before the ſecond Tueſday in February, 1796.

109, 110. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the ſecond Tueſday in February, 1797.

111. RHUBARB. For the greateſt quantity of Rhubarb, of Britiſh growth, not leſs than twenty pounds weight, equal to ſuch as is commonly ſold in the ſhops under the name of Turkey or Ruſſia Rhubarb; five pounds of which, as a ſample, with CERTIFICATES that the remainder is of equal goodneſs, and a particular Account of the manner of culture and cure, to be produced on or before the firſt Tueſday in November, 1795; the GOLD MEDAL.

112. For the next greateſt quantity, not leſs than ten pounds weight, the SILVER MEDAL.

113, 114. The ſame premiums are extended one year further.

The SAMPLES and CERTIFICATES to be produced on or before the firſt Tueſday in November, 1796.

115. ASCERTAINING THE COMPONENT PARTS OF ARABLE LAND. To the perſon who ſhall produce to the Society the moſt ſatisfactory ſet of experiments, to aſcertain the due proportion of the ſeveral component parts of Arable Land, in one or more counties in Great Britain, by an accurate analyſis of it; and who, having made a like analyſis of ſome poor land, ſhall, by comparing the component parts of each, and thereby aſcertaining the deficiencies in the poor ſoil, improve a quantity of it, not leſs than one acre, by the addition of ſuch parts as the former experiments ſhall have diſcovered to be wanting therein, and therefore probably the cauſe of its ſterility; the GOLD MEDAL, or FIFTY GUINEAS.

It is required that the manurings, ploughings, and crops of the improved land, be the ſame after the improvement as before; and that a minute account of the produce in each ſtate, of the weather, and of the various influencing circumſtances, together with the method made uſe of in analyſing the ſoils, be produced, with proper CERTIFICATES, and the chemical reſults of the analyſis, which are to remain the property of the Society, on or before the laſt Tueſday in November, 1795.

It is expected that a quantity, not leſs than ſix pounds, of the rich, of the poor, and of the improved ſoils, be produced with the Certificates.

N. B. Among the methods or proceſſes made uſe of by Chemiſts, and called DRY or MOIST, the latter only appears adapted to the aſcertaining the reſpective proportions of the component parts of Arable earth.—Dr. Shaw, in his Chemical Lectures; Dr. Home, in his Principles of Agriculture; Dr. George Fordyce, in his Ele-

Elements of Agriculture; and Sir Torbern Bergmen, in his "Diſſertation ſur les Terres Géoponiques; have treated of theſe ſubjects.

116. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the laſt Tueſday in November, 1796.

117. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the laſt Tueſday in November, 1797.

118. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the laſt Tueſday in November, 1798.

119.

119. DRAINING LAND. To the perſon who, in the year 1795, ſhall have made the greateſt number of yards, not fewer than one thouſand, of Hollow Drain, of brick, ſtone, or ſuch like durable materials, with a clear paſſage for the water, of not leſs than ſix inches wide, for the improvement of land injured by water ariſing from internal ſprings; the GOLD MEDAL, or THIRTY GUINEAS.

Particular accounts of the nature, quality, ſpontaneous produce, and yearly value of the Land before draining, and the ſuppoſed value afterwards; the nature and texture of the under-ſtrata whence the ſprings ariſe; the depth and width of the drains; the quantity of ſuppoſed water diſcharged; the expence of labour and materials per yard, in length, when finiſhed; a ſketch or plan of all the drains, and their ſeveral inclinations and diſtances from each other; with CERTIFICATES of the number of acres drained, and that the land was actually wet and ſpringy before draining,

ing, but dry and firm afterwards; to be produced to the Society on or before the the third Tuesday in February, 1796.

120. The same premium is extended one year further.

The ACCOUNTS and CERTIFICATES to to be produced on or before the third Tuesday in February, 1797.

121. IMPROVING LAND LYING WASTE. For the best Account of a method of improving any of the following soils, being land lying waste or uncultivated, *viz.* Clay, Gravel, Sand, Chalk, Moor or Peat-earth, and Bog; verified by experiments on not less than fifty acres of land; the GOLD MEDAL, or the SILVER MEDAL and TWENTY GUINEAS, for each.

122. For the next greatest quantity of land, not less than twenty-five acres, the SILVER MEDAL and TEN GUINEAS.

To

To be produced, with proper CERTIFICATES, on or before the ſecond Tueſday in December, 1795.

The ſoil, manner of improvement, expence, and product, are required to be fully explained.

123, 124. The premiums are extended one year further.

The ACCOUNTS to be produced on or before the ſecond Tueſday in December, 1796.

125, 126. The ſame premiums are extended one year further.

The ACCOUNTS to be produced on or before the ſecond Tueſday in December, 1797.

127. MANURES. For the moſt ſatisfactory ſet of experiments, to aſcertain the comparative advantages of the following Manures, uſed as Top-dreſſings, on Graſs or Corn Land, viz. Soot, Coal-Aſhes, Wood-Aſhes, Lime, Gypſum, Night-ſoil; the GOLD-MEDAL, or the SILVER MEDAL and TWENTY GUINEAS,

It is required that the above experiments be made between two or more of the above-mentioned Manures, and that not leſs than two acres of land be dreſſed with each Manure. An account of the nature of the ſoil, quantity and expence of the Manure, and crops, with CERTIFICATES, to be produced on or before the laſt Tueſday in February, 1796.

128. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the laſt Tueſday in February, 1797.

129. IMPROVING WASTE MOORS. For the improvement of the greateſt number of acres of Waſte Moor-Land, not leſs than one hundred, the GOLD MEDAL.

It is required that the land before improvement be abſolutely uncultivated, and in a great meaſure uſeleſs; that in its improved ſtate it be incloſed, cultivated, and divided into fields, ſufficient for the uſe and occupation of a tenant. CERTI-

CERTIFICATES of the number of acres, of the quality of the Moor ſo improved, of the mode and expence of the improvement, the ſtate it is in as to the proportion of graſs to arable, and the average value thereof, to be produced on or before the firſt Tueſday in February, 1796.

130. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in February, 1797.

131. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in February, 1798.

132. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in February, 1799.

133. GAINING LAND FROM THE SEA. To the perſon who ſhall produce to the Society an account of the beſt method, verified by actual experiment, of gaining Land from the Sea, not leſs than twenty acres, on the coaſt of England or Wales; the GOLD MEDAL.

CERTIFICATES of the quantity of Land, and that the experiments were begun after the firſt of January, 1790, to be produced to the Society on or before the firſt Tueſday in October, 1795.

N. B. The Society have been credibly informed, that land has been gained on the coaſt of Holland, by fixing rows of whiſps of ſtraw upright in the ſand, at about a foot diſtant from each other, or by fixing ſtakes at proper diſtances from each other, and wattling ſtraw-bands between them.

134. The ſame premium is extended one year further.

CERTI-

CERTIFICATES to be produced on or before the firſt Tueſday in October, 1796.

135. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in October, 1797.

136. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in October, 1798.

137. MACHINE FOR DIBBLING WHEAT. To the perſon who ſhall invent the beſt Machine, to anſwer the purpoſe of Dibbling Wheat, by which the holes for receiving the grain may be made at equal diſtances and proper depths, the grain regularly delivered therein, and effectually covered; the SILVER MEDAL, or TWENTY GUINEAS.

The MACHINE, with CERTIFICATES that at leaſt three acres have been dibbled

by it, to be produced to the Society on or before the ſecond Tueſday in January, 1796. Simplicity and cheapneſs in the conſtruction will be conſidered as principal parts of its merit.

138. MACHINE TO ANSWER THE PURPOSE OF REAPING OR MOWING CORN. For inventing a Machine to anſwer the purpoſe of mowing or reaping Wheat, Rye, Barley, Oats, or Beans, by which it may be done more expeditiouſly and cheaper than by any method now practiſed, provided it does not ſhed the corn or pulſe more than the methods in common practice, and that it lays the ſtraw in ſuch a manner as that it may be eaſily gathered up for binding; the SILVER MEDAL, or TEN GUINEAS.

The MACHINE, with CERTIFICATES that at leaſt three acres have been cut by it, to be produced to the Society on or before the ſecond Tueſday in December, 1795. Simplicity and cheapneſs in the conſtruction

ſtruction will be conſidered as principal parts of its merit.

139. IMPROVED HOE. To the perſon who ſhall produce to the Society the moſt improved or beſt-conſtructed Horſe or Hand Hoe, ſuperior to any hitherto in uſe, for the purpoſe of clearing from weeds, and looſening the ſoil in the intermediate ſpaces of all crops of corn ſown in equidiſtant rows, and which ſhall earth up the young plants at the ſame time; the GOLD MEDAL, or TWENTY GUINEAS.

A HOE, with CERTIFICATES of its having been ſucceſsfully uſed, to be produced to the Society on or before the firſt Tueſday in December, 1795.

139*. The ſame premium is extended one year further.

The HOE, with CERTIFICATES, to be produced on or before the firſt Tueſday in December, 1796.

140. DESTROYING THE GRUB OF THE COCKCHAFER. To the perſon who ſhall diſcover to the Society an effectual method, verified by repeated and ſatisfactory trials, of deſtroying the Grub of the Cockchafer, or of preventing or checking the deſtructive effects which always attend Corn, Peas, Beans, and Turneps, when attacked by thoſe inſects; the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS, with proper CERTIFICATES, to be produced or before the firſt Tueſday in January, 1796.

141. DESTROYING THE WIRE-WORM. To the perſon who ſhall diſcover to the Society, an effectual method, verified by repeated and ſatisfactory trials, of deſtroying the inſect called the Wire-worm, or of preventing or checking the deſtructive effects which always attend Corn, Beans, Peas, or Pulſe, when attacked by thoſe inſects; the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS, with proper CERTIFICATES, to be produced to the Society on or before the first Tuesday in January, 1796.

142. DESTROYING THE FLY ON HOPS, AND CATERPILLARS ON FRUIT-TREES AND CULINARY PLANTS. To the person who shall discover to the Society an easy and efficacious method of destroying the Fly on Hops, and Caterpillars on Fruit-trees and culinary Plants, superior to any hitherto known or practised, the GOLD MEDAL or THIRTY GUINEAS.

ACCOUNTS, and CERTIFICATES that the method has been effectually practised on not less than six acres of Hop-ground, or an Orchard or Garden of not less than two acres, to be delivered to the Society on or before the first Tuesday in February, 1796.

143. CURE OF THE ROT IN SHEEP. To the person who shall discover to the Society the best and most effectual

fectual method of preventing or curing the diſeaſe called the Rot in Sheep, verified by repeated and ſatisfactory experiments, the GOLD MEDAL, or THIRTY GUINEAS.

It is expected that the Candidates furniſh accurate accounts of the nature, ſymptoms, and cure of the diſeaſe, together with the imputed cauſe thereof, and the actual or probable means of prevention, which, with proper CERTIFICATES, muſt be delivered to the Society on or before the firſt Tueſday in February, 1796.

144. PREVENTING AND CURING THE ILL EFFECTS OF THE FLY ON SHEEP. To the perſon who ſhall diſcover to the Society the moſt effectual method of preventing and curing the ill effects of the Fly on Sheep, the SILVER MEDAL, or THIRTY GUINEAS.

It is required that the method be aſcertained by repeated experiments, and that a CERTIFICATE of its efficacy be delivered

to

to the Society on or before the firſt Tueſday in December, 1795.

145. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in December, 1796.

Pre-

Premiums for Diſcoveries and Improvements in Chemiſtry, Dying, and Mineralogy.

146. BARILLA. For the greateſt quantity of Merchantable Barilla, not leſs than half a ton, made from Spaniſh Kali, or any other plant raiſed in Great Britain, the GOLD MEDAL, or THIRTY GUINEAS.

A ſample of not leſs than twenty-eight pounds, with a CERTIFICATE that half a ton has been made, to be produced on or before the firſt Tueſday in January, 1796.

147. PRESERVING SEEDS OF VEGETABLES. For the beſt method of preſerving the ſeeds of Plants in a ſtate fit for vegetation a longer time than has hitherto been practiſed, ſuch method being ſuperior to any known to the public, and verified by ſufficient trial; to be communicated to the Society on or before the firſt Tueſ-

Tuesday in December, 1795; the GOLD MEDAL, or THIRTY GUINEAS.

148. The same premium is extended one year further; the ACCOUNTS to be produced on or before the first Tuesday in December, 1796.

149. METHOD OF SEPARATING THE SACCHARINE SUBSTANCE OF TREACLE IN A SOLID FORM. To the person who shall discover to the Society the best method of separating the Saccharine Substance of Treacle in a solid form, at such an expence as will render it advantageous to the public, the GOLD MEDAL, or FIFTY GUINEAS.

A quantity of the Saccharine Substance, so separated, in a solid form, not less than thirty pounds weight, with an account of the process, and CERTIFICATES that not less than one hundred weight has been prepared, to be produced to the Society on or before the first Tuesday in February, 1796.

150. The ſame premium is extended one year further.

SAMPLES and CERTIFICATES to be produced to the Society on or before the firſt Tueſday in February, 1797.

151. PRESERVING FRESH-WATER SWEET. To the perſon who ſhall produce to the Society the beſt account, verified by ſatisfactory trials, of an efficacious method of preſerving Freſh-water ſweet during long voyages, the GOLD MEDAL, or FIFTY GUINEAS.

ACCOUNTS, and full deſcriptions of the methods made uſe of, in order that it may be known that nothing injurious enters therein, to be produced to the Society, with at leaſt thirty gallons of Water ſo preſerved, and proper CERTIFICATES, on or before the laſt Tueſday in December, 1795.

152. The ſame premium is extended one year further.

The

The ACCOUNTS and CERTIFICATES to be produced on or before the laſt Tueſday in December, 1796.

153. DESTROYING SMOKE. For the beſt account, aſcertained by proper experiments, of a method of deſtroying or burning the Smoke of fires belonging to Steam-Engines, Furnaces employed in calcining or ſmelting Metals, or other large works, in order to prevent annoyance to the neighbourhood; to be produced on before the firſt Tueſday in January, 1796; the GOLD MEDAL, or THIRTY GUINEAS.

154. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the firſt Tueſday in January, 1797.

155. CONDENSING SMOKE. To the perſon who ſhall invent the beſt method by which the Smoke of Steam-En-

gines, Brewhouſes, Sugar-houſes, or Furnaces, may be advantageouſly condenſed and collected in the form of Tar, or ſome other uſeful material; the GOLD MEDAL, or FIFTY GUINEAS.

The ACCOUNTS, with proper CERTIFICATES of the method having been ſucceſsfully employed, and ſpecimens of the materials produced, to be delivered to the Society on or before the firſt Tueſday in December, 1795.

156. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in December, 1796.

157. CANDLES FROM RESIN. To the perſon who ſhall diſcover to the Society the beſt method of ſo reducing the inflammable quality of Reſin, as to adapt it to the purpoſes of making Candles fit for common uſe, at a price much infe-

rior

rior to that of Candles made of Tallow only; the GOLD MEDAL, or THIRTY GUINEAS.

Six pounds at leaſt of the Candles ſo prepared, with an ACCOUNT of the proceſs, to be delivered to the Society on or before the firſt Tueſday in December, 1795.

158. REFINING WHALE OR SEAL OIL. For diſcloſing to the Society an effectual method of purifying Whale or Seal Oil from the glutinous matter that encruſts the wicks of lamps, and extinguiſhes the light, though fully ſupplied with oil; the GOLD MEDAL, or FIFTY GUINEAS.

It is required that the whole of the proceſs be fully and fairly diſcloſed, in order that ſatisfactory experiments may be made by the Society, to determine the validity of the claim; and CERTIFICATES that not leſs than twenty gallons have been purified according to the proceſs delivered in, together with two gallons of the oil

in its unpurified ſtate, and two gallons ſo refined, be produced to the Society on or before the ſecond Tueſday in February, 1796.

159. The ſame premium is extended one year further.

CERTIFICATES and SAMPLES to be produced on before the ſecond Tueſday in February, 1797.

160. CLEARING FEATHERS FROM THEIR ANIMAL OIL. To the perſon who ſhall diſcover to the Society the beſt and moſt expeditious method, ſuperior to any hitherto practiſed, of clearing Feathers from their offenſive Animal Oil, for the uſe of upholders in making beds, cuſhions, &c. the GOLD MEDAL, or FORTY GUINEAS.

A quantity of Feathers ſo cleared, not leſs than twenty pounds weight, with a full account of the proceſs, to be produced to the Society on or before the firſt Tueſday in February, 1796.

161. SUBSTITUTE FOR, OR PREPARATION OF, YEAST. For diſcovering to the Society an effectual Subſtitute for Yeaſt, or preparation of Yeaſt, which, after being kept ſix months, ſhall be fit for fermenting liquors, and raiſing bread; the GOLD MEDAL, or THIRTY GUINEAS.

Specimens of the Subſtitute, or of the Preparation of Yeaſt, ſufficient for trials, together with a paper ſealed up, and containing an account of the compoſition of the Subſtitute, or method of preparing the Yeaſt, to be produced on or before the laſt Tueſday in November, 1795.

162. PRESERVING SALTED PROVISIONS FROM BECOMING RANCID OR RUSTY. To the perſon who ſhall diſcover to the Society the beſt, cheapeſt, and moſt efficacious method of preſerving Salted Proviſions from growing rancid or ruſty; the GOLD MEDAL, or THIRTY GUINEAS.

A full deſcription of the method, with proper CERTIFICATES that it has been found, on repeated trials, to anſwer the purpoſe intended, to be produced to the Society on or before the firſt Tueſday in February, 1796.

163. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced to the Society on or before the firſt Tueſday in February, 1797.

164. INCREASING STEAM. To the perſon who ſhall diſcover to the Society a method, verified by actual experiments, of increaſing the quantity or the force of Steam, in Steam-Engines, with leſs fuel than is uſually employed, provided that in general the whole amount of the expences in uſing Steam-Engines may be conſiderably leſſened; the GOLD MEDAL, or THIRTY GUINEAS.

To

To be communicated to the Society on or before the firſt Tueſday in January, 1796.

N. B. As it is well known there are methods of preventing the ebullition of liquids by the addition of particular matters in the boiling, it is ſubmitted to the conſideration of the ingenious, whether, by the addition of ſome matters, or by ſome mechanical operations, the boiling and evaporation may not be increaſed.

165. PREVENTING THE DRY-ROT IN TIMBER. To the perſon who ſhall diſcover to the Society the cauſe of the Dry-Rot in Timber, and diſcloſe a certain method of prevention, ſuperior to any hitherto known, the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS of the cauſe, and method of prevention, confirmed by repeated experiments, to be produced to the Society on or before the ſecond Tueſday in December, 1795.

166. The ſame premium is extended one year further.

The ACCOUNTS to be produced on or before the ſecond Tueſday in December, 1796.

167. FINE BAR-IRON. To the perſon, in England or Wales, who ſhall make the greateſt quantity of Bar-Iron, not leſs than ten tons, with Coak, from Coak Pigs, equal in quality to the beſt Iron imported from Sweden or Ruſſia, and as fit for converting into Steel; the GOLD MEDAL.

SAMPLES, not leſs than one hundred weight, with CERTIFICATES that the whole quantity is of equal quality, to be produced to the Society on or before the firſt Tueſday in January, 1796.

168. The ſame premium is extended one year further.

SAMPLES and CERTIFICATES to be delivered on or before the firſt Tueſday in January, 1797.

169.

169. METHOD OF PREPARING WHITE LEAD, WHICH SHALL NOT BE PREJUDICIAL. To the perſon who ſhall diſcover to the Society a method of preparing White Lead, in a manner that ſhall not be prejudicial to the health of the workmen employed either in making or uſing it, and will anſwer all the purpoſes for which White Lead is at preſent uſed; the GOLD MEDAL, or FIFTY GUINEAS.

A quantity of the White Lead ſo prepared, with an account of the proceſs made uſe of, and CERTIFICATES that not leſs than one ton has been manufactured in the ſame manner, to be produced to the Society on or before the ſecond Tueſday in February, 1796.

170. SUBSTITUTE FOR THE BASIS OF PAINT. To the perſon who ſhall produce to the Society the beſt Subſtitute, ſuperior to any hitherto known, for the Baſis of Paint, equally proper for the purpoſe as the White Lead now employed;

ſuch ſubſtitute not to be of a noxious quality, and which may be afforded at a price not materially higher than that of White Lead; the GOLD MEDAL, or THIRTY GUINEAS.

A quantity of the Subſtitute, not leſs than fifty pounds weight, with an ACCOUNT of the proceſs uſed in preparing it, and CERTIFICATES that at leaſt five hundred weight has been manufactured, to be produced to the Society on or before the ſecond Tueſday in November, 1795.

171. The ſame premium is extended one year further.

CERTIFICATES and ACCOUNTS to be produced on or before the ſecond Tueſday in November, 1796.

172. REFINING BLOCK TIN. To the perſon who ſhall diſcover to the Society the beſt method of purifying or refining *Block Tin*, in ſuch manner as to render it fit for the finer purpoſes to which *Grain*

Tin is now ſolely applied, and at an expence that ſhall not render it higher in price than *Grain Tin*; the GOLD MEDAL, or FIFTY GUINEAS.

CERTIFICATES that not leſs than three tons have been refined or purified, with a full detail of the proceſs, and a quantity, not leſs than one hundred weight, of the Tin ſo refined, to be produced to the Society on or before the firſt Tueſday in November, 1795.

173. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in November, 1796.

174. GLAZING EARTHEN WARE WITHOUT LEAD. To the perſon who ſhall diſcover to the Society the cheapeſt, ſafeſt, moſt durable, and moſt eaſily fuſible Compoſition, fit for the purpoſe of glazing the ordinary kinds of Earthen

Earthen Ware, without any preparation of Lead, and preferable to any hitherto in uſe; the GOLD MEDAL, or THIRTY GUINEAS.

SPECIMENS of the Ware ſo glazed, with proper CERTIFICATES of its having ſucceeded, and a SAMPLE of the materials made uſe of, to be produced to the Society on or before the firſt Tueſday in February, 1796.

175. PURIFYING BRACKISH WATER. To the perſon who ſhall diſcover to the Society the beſt and cheapeſt method, verified by actual experiment, of Purifying or Reducing Brackiſh Water, which frequently ariſes from New Wells, made in particular places, to a natural ſweetneſs, fit for the uſe of families and for the purpoſe of cattle; the SILVER MEDAL, and FIFTEEN GUINEAS.

Satisfactory CERTIFICATES that ſuch Brackiſh Water has been rendered perfectly ſweet, and uſed by the family to which ſuch Well

Well may belong at leaſt three months afterwards, with an account of the method made uſe of in purifying the ſame, to be delivered to the Society on or before the ſecond Tueſday in February, 1796.

Premiums

Premiums for promoting the Polite Arts.

176. HONORARY PREMIUMS FOR DRAWINGS. For the beſt Drawing of any kind, made with Water-Colours, Crayons, Chalk, Black Lead, Pen, Indian Ink, or Biſter, by young Gentlemen under the age of twenty-one, ſons or grandſons of Peers, or Peereſſes in their own right, of Great Britain or Ireland, to be produced on or before the firſt Tueſday in March, 1796; the HONORARY MEDAL of the Society IN GOLD.

177. The ſame IN SILVER for the next in merit.

178, 179. The ſame premiums will be given, on the like conditions, to young Ladies, daughters or grand-daughters of Peers, or Peereſſes in their own right, of Great-Britain or Ireland.

180. HONORARY PREMIUMS FOR DRAWINGS. For the beſt Drawing of any kind, made with Water-colours, Crayons, Chalk, Black Lead, Pen, Indian Ink, or Biſter, by young Gentlemen under the age of twenty-one; to be produced on or before the firſt Tueſday in March, 1796; the GOLD MEDAL.

181. For the next in merit, the SILVER MEDAL.

182, 183. The ſame premiums will be given for Drawings by young Ladies.

N. B. As the foregoing Honorary Premiums are intended only for ſuch of the Nobility and Gentry as may hereafter become patrons or patroneſſes of the Arts; perſons profeſſing any branch of the Polite Arts, or any buſineſs dependent on the Arts of Deſign, or the ſons or daughters of ſuch perſons, will not be admitted Candidates in theſe Claſſes.

The two following Premiums (Classes 184 *and* 185*) are offered in conformity to the Will of the late John Stock, of Hampstead, Esq.*

184. DRAWING. For the best Drawing in perspective of the Water-gate at York-buildings, not less than eighteen inches high, to be produced on or before the third Tuesday in February, 1796, a SILVER MEDALLION, with the following engraved inscription: *The Premium given by the Society for the Encouragement of Arts, Manufactures, and Commerce, in conformity to the Will of John Stock, of Hampstead, Esq.* The Drawing to be left with the Society as their property.

185. PORTRAIT. For the best Copy, in Oil-Colours, of a Portrait of the late JOHN STOCK, of Hampstead, Esq. to be produced on or before the third Tuesday in February, 1796, a SILVER MEDALLION, with

with the following engraved inſcription: *The Premium given by the Society for the Encouragement of Arts, Manufactures, and Commerce, in conformity to the Will of John Stock, of Hampſtead, Eſq.*

186. DRAWINGS OF OUTLINES. For the beſt Outline, after an original group or caſt, in plaſter, of Human Figures, by perſons of either ſex, under the age of ſixteen, the principal figure not leſs than twelve inches; to be produced on or before the third Tueſday in February, 1796; the greater SILVER PALLET.

187. For the next in merit, the leſſer SILVER PALLET.

N. B. Theſe drawings are to be made on Paper, with Chalk, Black Lead, Indian Ink, or Biſter; and the original either to be produced to the Society, or to be referred to for their examination.

188.

188. DRAWINGS OF MACHINES. For the beſt Perſpective Drawing, by perſons of either ſex under the age of twenty-one years, of Mr. Fulton's Machine for Sawing Marble, Stone, &c. in the Society's Repoſitory, the greater SILVER PALLET; to be produced on or before the third Tueſday in February, 1796.

N. B. Such Candidates as propoſe to make Drawings for this Premium, will be admitted by the Regiſter any day (Sundays and Wedneſdays excepted), between the hours of ten and two.

The Drawing to which the premium is adjudged, is to remain the property of the Society.

189. DRAWINGS OF LANDSCAPES. For the beſt Drawing of a Landſcape after nature, by perſons of either ſex under twenty-one years of age, to be produced on or before the third Tueſday in February, 1796, the greater SILVER PALLET.

190. For the next in merit, the leſſer SILVER PALLET.

Each Candidate muſt mention on the front of the Drawing, from whence the View was taken; and the Drawings muſt be made with Chalk, Pen, Indian Ink, Water-Colours, or Biſter.

191. HISTORICAL DRAWINGS. For the beſt Hiſtorical Drawing, being an original compoſition, of five or more Human Figures; the height of the principal figure not leſs than eight inches; to be made with Crayons, Chalk, Black Lead, Pen, Indian Ink, Water-colours, or Biſter, and to be produced on or before the third Tueſday in February, 1796; the GOLD PALLET.

192. For the next in merit, the greater SILVER PALLET.

193. SURVEYS OF COUNTIES. To the perſon who, in the year 1795, ſhall complete and publiſh an accurate Survey of

any one County in England or Wales, on a ſcale of not leſs than one inch to a mile, for which rewards have not already been given by the Society; the GOLD MEDAL, or FIFTY GUINEAS.

CERTIFICATES of the accuracy of the Survey, and that it was begun after the firſt of June, 1791, together with the Map, to be produced on or before the laſt Tueſday in January, 1796.

The Map to which the premium ſhall be adjudged, to remain the property of the Society.

N. B. The Society are already in poſſeſſion of Surveys of the following Counties, viz. Bedford, Cornwall, Devonſhire, Derbyſhire, Durham, Somerſetſhire, Northumberland, Suffolk, Leiceſterſhire, Cumberland, Lancaſhire, Dorſetſhire, Hampſhire, Glouceſterſhire, Herefordſhire, Hertfordſhire, Huntingdonſhire, Northamptonſhire, Nottinghamſhire, Weſtmorland, and Worceſterſhire.

194.

194. The ſame premium is extended one year further.

The Survey to be begun after the firſt of June, 1792; and the Map to be produced on or before the laſt Tueſday in January, 1797.

195. The ſame premium is extended one year further.

The Survey to be begun after the firſt of June, 1793; and the Map to be produced on or before the laſt Tueſday in January, 1798.

196. The ſame premium is extended year further.

The Survey to be begun after the firſt of June, 1794; and the Map to be produced on or before the laſt Tueſday in January, 1799.

197. NATURAL HISTORY. To the Author who ſhall publiſh, in the year 1795, the Natural Hiſtory of any County of England or Wales, the GOLD MEDAL, or FIFTY GUINEAS.

It is required that the ſeveral natural productions, whether animal, vegetable, or mineral, peculiar to the county, or found therein, be carefully and ſpecifically arranged and deſcribed, in order that the Public may be enabled to judge what Arts or Manufactures are moſt likely to ſucceed in ſuch County.

The Work to be delivered to the Society on or before the laſt Tueſday in January, 1796.

198. The ſame premium is extended one year further.

The Work to be delivered to the Society on or before the laſt Tueſday in January, 1797.

199. The ſame premium is extended one year further.

The Work to be delivered to the Society on or before the laſt Tueſday in January, 1798.

CON-

CONDITIONS.

No perſon who has gained the firſt premium in any Claſs, will be admitted a Candidate in a Claſs of an inferior age; and no Candidate ſhall receive more than one Premium in one year; nor will they who for two ſucceſſive years ſhall gain the firſt Premium in one Claſs, be ever again admitted as candidates in that Claſs.

No perſon ſhall ever be admitted a Candidate in any Claſs, in which he has three times obtained the whole of the firſt Premium.

No Candidate ſhall ſend in more than one Performance in any one Claſs.

All the Claims which are produced each year before the Committee of Polite Arts, (to which Premiums or Bounties are adjudged) are to remain with the Society ſix weeks after the determination, unleſs the Candidates, for particular reaſons, do apply to have their performances returned.

No Claim for a Premium in the Polite Arts will be admitted, that has obtained,

or has been produced in order to obtain, a Premium, Reward, or Gratification, from any other Society, or any Academy or School.

All Performances that obtain Premiums in the Polite Arts, muſt be begun after the publication of ſuch Premiums.

Purpoſely to encourage real merit, and to prevent any attempts to impoſe on the Society, by producing Drawings which ſhall have been made or retouched by any other perſon than the Candidate, the Society is reſolved, upon all occaſions, with reſpect to the ſucceſsful Candidates in Claſſes 186 to 192 incluſive, to prove their abilities, by requiring a ſpecimen made under the inſpection of the Committee of Polite Arts, in every inſtance where ſuch proof can be obtained.

It is required that all Candidates in the Polite Arts do ſignify, on their Drawings, their age; and whether the performances are originals, or copies; and, if copies, whence they were taken.

Pre-

Premiums for encouraging and improving Manufactures.

200. SILK. For the greateſt quantity of merchantable Silk, not leſs than ten pounds weight, produced by worms bred in England in the year 1795, the property of any one perſon, the GOLD MEDAL.

SPECIMENS of the SILK, not leſs than one pound, with CERTIFICATES that the whole is of equal quality, and produced in England, to be delivered to the Society on or before the firſt Tueſday in January, 1796.

200.* For the ſecond greateſt quantity, not leſs than five pounds weight, the SILVER MEDAL.

The Specimens and Certificates to be delivered to the Society on or before the firſt Tueſday in January, 1796.

201. MACHINE FOR CARDING SILK. For the beſt Machine, ſuperior to

any now in uſe, for carding Waſte Silk equally well as by hand; to be produced, together with a ſpecimen of the Cardings, on or before the firſt Tueſday in November, 1795; the GOLD MEDAL, or THIRTY GUINEAS.

202. WEAVING FISHING-NETS, For the beſt ſpecimen of Plain Netting, for Fiſhing-Nets, ſuperior to any hitherto in uſe, not leſs than twenty yards long, and ſix feet deep, woven in a Loom, or other Machine; to be produced to the Society on or before the ſecond Tueſday in January, 1796; FIFTY GUINEAS.

N. B. It is expected that the Specimen produced be made in ſuch a manner, as to be cut and joined without more loſs than uſual; that it have ſuch a plain ſelvage as the common Fiſhing-Nets; and that the Knot be equally faſt with thoſe in Nets in common uſe, and as eaſily repaired.

203. CLOTH FROM HOP-STALKS OR BINES. To the perſon who ſhall pro-

produce to the Society the greateſt quantity, not leſs than thirty yards, of Cloth, at leaſt twenty-ſeven inches wide, made in England or Wales of Hop-Stalks or Bines, and ſuperior to any hitherto manufactured in England of that material, the GOLD MEDAL, or THIRTY GUINEAS.

One pound of the Thread of which the Cloth is made, and thirty yards of the Cloth, together with proper CERTIFICATES that the whole is manufactured from Hop-Stalks or Bines, to be produced to the Society on or before the ſecond Tueſday in December, 1795.

N. B. The Society are already in poſſeſſion of Cloth made in England from Hop-Stalks or Bines, which may be inſpected by application to the Regiſter.

204. WICKS FOR CANDLES OR LAMPS. To the perſon who ſhall diſcover to the Society a method of manufacturing Hop-Stalks or Bines, or any other cheap material, the growth of England or Wales,

Wales, ſo as to render them fit for the purpoſe of ſupplying the place of Cotton, for Wicks of Candles or Lamps, TWENTY GUINEAS.

SAMPLES, not leſs than five pounds weight, of the Wicks, ſo prepared, to be produced to the Society, with CERTIFICATES that the whole quantity is equal in quality to the Sample produced, on or before the ſecond Tueſday in January, 1796.

205. The ſame premium is extended one year further.

SAMPLES and CERTIFICATES to be produced on or before the ſecond Tueſday in January, 1797.

206. PAPER FROM RAW VEGETABLE SUBSTANCES. To the perſon in England or Wales who ſhall make the greateſt quantity, not leſs than ten reams, of the beſt and moſt uſeful Paper, from Raw Vegetable Subſtances, TWENTY GUINEAS.

CER-

CERTIFICATES of the making ſuch Paper, and one ream of the Paper, to be produced on or before the firſt Tueſday in November, 1795.

N. B. The Society are in poſſeſſion of two volumes, containing a great variety of ſpecimens of Paper made from Raw Vegetables, viz. Thiſtles, Potatoe-Haum, Poplar, Hop-bines, &c. which volumes may be inſpected by any perſon, on application to the Regiſter.

207. STARCH FROM HORSE CHESNUTS. To the Starch-maker, who ſhall make the greateſt quantity, not leſs than two hundred weight, of Starch, from the fruit of the Horſe Cheſnut, TWENTY GUINEAS.

Five pounds of the Starch, ſo prepared, with Certificates that the whole quantity is of the ſame quality, to be produced to the Society on or before the ſecond Tueſday in January, 1796.

N. B.

N. B. The Society think it neceſſary to caution all perſons, who are not duly licenſed Starch-makers, to avoid making any experiments on preparing Starch in conſequence of this advertiſement, leſt they ſhould incur the penalties mentioned in the ſeveral Acts of Parliament made for the regulation of the manufacture of Starch.

208. MAINTAINING AND EMPLOYING THE POOR. To the perſon who ſhall produce to the Society, the beſt practical and moſt œconomical Plan for the maintenance and employment of the Poor in Pariſh Workhouſes, ſuperior to any hitherto generally known, the GOLD MEDAL, or FIFTY GUINEAS.

The Plans to be delivered to the Society on or before the firſt Tueſday in March, 1796.

Pre-

Premiums for Inventions in Mechanicks.

209. TRANSIT INSTRUMENT. To the perſon who ſhall invent and produce to the Society a cheap and portable Tranſit Inſtrument, which may eaſily be converted into a Zenith Sector, capable of being accurately and expeditiouſly adjuſted for the purpoſe of finding the Latitudes and Longitudes of places, and ſuperior to any portable Tranſit Inſtrument now in uſe, the GOLD MEDAL, or FORTY GUINEAS.

To be produced on or before the laſt Tueſday in January, 1796.

210. TAKING WHALES BY THE GUN-HARPOON. To the perſon who, in the year 1795, ſhall ſtrike the greateſt number of Whales, not fewer than three, with the Gun-Harpoon, TEN GUINEAS.

Proper CERTIFICATES of the ſtriking ſuch Whales, and that they were actually taken in the year 1795, ſigned by the Maſter,

or

or by the Mate when the Claim is made by the Maſter, to be produced to the Society on or before the laſt Tueſday in December, 1795.

211. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the laſt Tueſday in December, 1796.

212. DRIVING BOLTS INTO SHIPS. To the perſon who ſhall invent and produce to the Society a Model, ſhewing a method of driving Bolts into Ships, particularly thoſe of Copper, without ſplitting the head or bending them, with more diſpatch, in all directions, and tighter than by any means hitherto known or in uſe, THIRTY GUINEAS.

The Model, with CERTIFICATES that a Machine on the ſame conſtruction has been uſed to advantage, to be produced to the

the Society on or before the firſt Tueſday in February, 1796.

213. PORTABLE MACHINE FOR LOADING AND UNLOADING GOODS. To the perſon who ſhall produce an Invention to the Society, of the beſt, moſt ſimple, and portable Machine, ſuperior to any hitherto known, or in uſe, for the purpoſe of loading and unloading goods; the GOLD MEDAL, or FORTY GUINEAS.

The Machine itſelf, or a Model of it, to be delivered to the Society on or before the firſt Tueſday in January, 1796.

214. METAL ROPE OR CHAIN. To the perſon who ſhall have invented a Chain or Rope of Copper, or other Metal, ſuperior to any hitherto made, ſufficiently flexible to work well, and in ALL DIRECTIONS, over pullies, and which ſhall ſerve every purpoſe of a good Hempen Rope, of at leaſt two inches diameter, the GOLD MEDAL, or FIFTY GUINEAS.

The Candidate to produce to the Society ſatisfactory CERTIFICATES that ſuch Metal Rope or Chain has been uſed to advantage in manufactories, or large works, where Hempen Ropes have been hitherto employed.

The CERTIFICATES, and a Sample of the Metal Rope or Chain, not leſs than ten yards long, to be produced to the Society on or before the firſt Tueſday in November, 1795.

215. HAND MILL. To the perſon who ſhall produce to the Society a better conſtructed Hand Mill, for general purpoſes, than any now known or in uſe, the SILVER MEDAL, or TWENTY GUINEAS.

To be delivered to the Society on or before the laſt Tueſday in December, 1795.

216. MACHINE FOR RAISING COALS, ORE, &c. &c. To the perſon who ſhall invent a Machine for raiſing Coals,

Coals, Ore, &c. from Mines, which ſhall produce the effect at a leſs expence than thoſe already known or in uſe, the GOLD MEDAL, or FIFTY GUINEAS.

A Model of the Machine, made on a ſcale of not leſs than one inch to a foot, to be produced to the Society on or before the ſecond Tueſday in February, 1796.

217. MACHINE FOR RAISING WATER. To the perſon who ſhall invent a Machine on a better, cheaper, and more ſimple conſtruction than any hitherto known or in uſe, for raiſing Water out of Wells, &c. from a depth not leſs than fifty feet, the GOLD MEDAL, or FORTY GUINEAS.

CERTIFICATES of the performance of the Machine, and a Model of it, on a ſcale of not leſs than one inch to a foot, to be produced to the Society on or before the firſt Tueſday in February, 1796.

218. MACHINE FOR CLEARING RIVERS. For the beſt Model of a Machine, ſuperior to any now in uſe, for clearing Navigable Rivers from Weeds at the leaſt expence, the GOLD MEDAL, or FORTY GUINEAS.

To be produced to the Society on or before the firſt Tueſday in February, 1796.

219. METHOD OF EXTINGUISHING FIRES. To the perſon who ſhall produce to the Society, the moſt ſpeedy and effectual method of extinguiſhing Fires in houſes or other buildings, ſuperior to any hitherto known or in uſe, the GOLD MEDAL, or FIFTY GUINEAS.

To be produced on or before the ſecond Tueſday in February, 1796.

220. PREVENTING WATER FREEZING IN PIPES. To the perſon who ſhall invent and diſcover to the Society a cheap and effectual Method, ſuperior to any hitherto in uſe, for preventing the Water

Water freezing in Pipes, ſerving to ſupply dwelling-houſes or other buildings, the GOLD MEDAL, or THIRTY GUINEAS.

The ACCOUNTS, with proper CERTIFICATES of the utility of the method, to be delivered to the Society on or before the firſt Tueſday in March, 1796.

221. IMPROVEMENT OF WHEEL-CARRIAGES. To the perſon who ſhall diſcover to the Society the principles, and point out the conſtruction, upon which Wheel-Carriages may be drawn with the leaſt fatigue to the horſe or horſes employed, the GOLD MEDAL, or FIFTY GUINEAS.

The CLAIMS to be delivered to the Society on before the ſecond Tueſday in December, 1795.

222. PREVENTING HORSES TURNING ABOUT IN DRAWING WATER, &c. To the perſon who ſhall

invent and produce to the Society a Model, on a ſcale of not leſs than one inch to the foot, ſhewing an eaſy, ſafe, and expeditious method to obviate the neceſſity of the horſes employed in raiſing Water out of deep Wells, drawing Ore from Mines, or Coals from Pits, turning about at the time the Water, Ore, or Coal is delivered; the GOLD MEDAL, or FORTY GUINEAS.

The Model to be produced to the Society, with CERTIFICATES of a Machine on the ſame conſtruction having been uſefully employed, on or before the firſt Tueſday in February, 1796.

223. The ſame premium is extended one year further.

The MODEL and CERTIFICATES to be produced on or before the firſt Tueſday in February, 1797.

224. BORING ROCKS IN ORDER TO BLAST THEM. To the perſon who

who ſhall diſcover to the Society, a more cheap, ſimple, and expeditious Method than any hitherto known or in uſe, of Boring Rocks in Mines, Shafts, Wells, &c. for the purpoſe of Blaſting them with Gunpowder, the GOLD MEDAL, or FORTY GUINEAS.

CERTIFICATES of the method having been practiſed with ſucceſs, with a full deſcription thereof, to be delivered to the Society on or before the firſt Tueſday in January, 1796.

Premiums offered for the Advantage of the Britiſh Colonies.

225. NUTMEGS. For the greateſt quantity of merchantable Nutmegs, not leſs than ten pounds weight, being the growth of his Majeſty's dominions in the Weſt Indies, or any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, and equal to thoſe imported from the Iſlands of the Eaſt Indies, the GOLD MEDAL, or ONE HUNDRED GUINEAS.

Satisfactory CERTIFICATES, from the Governor, or Commander in Chief, of the place of growth, with an account of the number of trees, their age, nearly the quantity of fruit on each tree, and the manner of culture, to be produced on or before the firſt Tueſday in December, 1795.

226. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the ſecond Tueſday in December, 1796.

227. CINNAMON. For importing into the port of London, in the year 1795, the greateſt quantity, not leſs than twenty pounds weight, of Cinnamon, being the growth of ſome of the Iſlands in the Weſt-Indies belonging to the Crown of Great-Britain, or any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, and equal in goodneſs to the Cinnamon brought from the Eaſt-Indies, the GOLD MEDAL, or FIFTY GUINEAS.

SAMPLES, not leſs than two pounds weight, with CERTIFICATES that the whole quantity is equal in goodneſs; together with ſatisfactory CERTIFICATES, ſigned by the Governor, or Commander in Chief, of the place of growth, with an account of the number of trees growing on the ſpot, their age, and the manner of cul-

ture; to be produced to the Society, on or before the firſt Tueſday in January, 1796.

228. The ſame premium is extended one year further.

The SAMPLES and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1797.

229. PLANTATIONS OF BREAD-FRUIT TREE. To the perſon who ſhall have raiſed in any of the Iſlands of the Weſt-Indies ſubject to the Crown of Great Britain, or in any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, between the firſt of January, 1795, and the firſt of January, 1796, the greateſt number of Bread-fruit Trees, not fewer than one hundred, and properly fenced and ſecured the ſame, in order to ſupply the Fruit to the Inhabitants, the GOLD MEDAL, or THIRTY GUINEAS.

Proper ACCOUNTS and CERTIFICATES, ſigned by the Governor or Commander in Chief,

Chief, of the methods made uſe of in cultivating the Plants and ſecuring the Plantation, and that the Trees are in a growing and thriving ſtate at the time of ſigning ſuch Certificates, to be produced to the Society on or before the firſt Tueſday in January, 1797.

230. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1798.

231. The ſame premium is extended one year further.

The ACCOUNTS and CERTIFICATES to be produced on or before the firſt Tueſday in January, 1799.

232. KALI FOR BARILLA. To the perſon who ſhall have cultivated, in the Bahama Iſlands, or any other part of his Majeſty's dominions in the Weſt Indies, or any

any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, in the year 1792, the greateſt quantity of land, not leſs than two acres, with Spaniſh Kali, fit for the purpoſe of making Barilla, the GOLD MEDAL, or THIRTY GUINEAS.

233. For the next greateſt quantity, not leſs than one acre, the SILVER MEDAL, or FIFTEEN GUINEAS.

CERTIFICATES, ſigned by the Governor, or Commander in Chief for the time being, of the quantity of land ſo cultivated, and of the ſtate of the Plants at the time of ſigning ſuch Certificates, to be delivered to the Society on or before the ſecond Tueſday in November, 1795.

234, 235. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the ſecond Tueſday in November, 1796.

236.

236, 237. The ſame premiums are extended one year further.

CERTIFICATES to be produced on or before the ſecond Tueſday in November, 1797.

238. DISCOVERY OF A PASSAGE BY LAND FROM UPPER CANADA TO THE SOUTH SEA. To the perſon who ſhall firſt diſcover a Paſſage by Land, from the north-weſt parts of Upper Canada to the South Sea, between Nootka Sound and the Straits of Kamſchatka, or to the navigable part of any River that diſembogues itſelf into the South Sea within thoſe limits, the GOLD MEDAL.

Such diſcovery to be aſcertained by a CERTIFICATE under the hand and ſeal of the Governor, or Commander in Chief for the time being, of the ſaid province of Upper Canada.

239. DESTROYING THE INSECT COMMONLY CALLED THE BORER.

To

To the perſon who ſhall diſcover to the Society an effectual method of deſtroying the Inſect commonly called the BORER, which has of late years been ſo deſtructive to the Sugar-Canes in the Weſt-India Iſlands, or any of the Britiſh Settlements on the Coaſt of Africa, or the ſeveral Iſlands adjacent thereto, the GOLD MEDAL, or FIFTY GUINEAS.

The Diſcovery to be aſcertained by ſatisfactory CERTIFICATES, under the hand or ſeal of the Governor or Commander in Chief for the time being, and of ſome other reſpectable perſons, inhabitants of the Iſlands, or other place, in which the remedy has been ſucceſsfully applied; ſuch CERTIFICATES to be delivered to the Society on or before the firſt Tueſday in January, 1796.

240. The ſame premium is extended one year further.

CERTIFICATES to be delivered on or before the firſt Tueſday in January, 1797.

241.

241. BOTANIC GARDEN IN THE BAHAMA ISLANDS. To the perſon who, before the firſt of January, 1795, ſhall ſet apart, and properly fence and cultivate, the greateſt quantity of ground, not leſs than five acres, in any of the Bahama Iſlands, as a Botanic Garden, for the purpoſe of making experiments in the culture of thoſe articles which are the peculiar production of the tropical climates, and which may tend to promote the commerce and manufactures of this country; the GOLD MEDAL, or ONE HUNDRED GUINEAS.

It is required that any perſon claiming the foregoing premium, ſhould produce to the Society, on or before the firſt Tueſday in January, 1796, a CERTIFICATE from the Governor or Commander in Chief of the Bahama Iſlands for the time being, of his having complied with the above requiſitions, and that the Garden is in a proper ſtate of culture at the time of ſigning ſuch Certificate.

242. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in January, 1797.

243. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in January, 1798.

244. The ſame premium is extended one year further.

CERTIFICATES to be produced on or before the firſt Tueſday in January, 1799.

Society's

Society's Office, Adelphi, June 3, 1795.

Ordered,

THAT THE SEVERAL CANDIDATES AND CLAIMANTS TO WHOM THE SOCIETY SHALL ADJUDGE PREMIUMS OR BOUNTIES, DO ATTEND AT THE SOCIETY'S OFFICE IN THE ADELPHI, ON THE LAST TUESDAY IN MAY, 1796, AT TWELVE O'CLOCK AT NOON, TO RECEIVE THE SAME; THAT DAY BEING APPOINTED BY THE SOCIETY FOR THE DISTRIBUTION OF THEIR REWARDS: AND BEFORE THAT TIME NO PREMIUM OR BOUNTY WILL BE DELIVERED, EXCEPTING TO THOSE WHO ARE OUT OF THE KINGDOM, OR PREVENTED BY UNAVOIDABLE ACCIDENTS.

IN CASES WHERE THE SOCIETY MAY THINK FIT TO ADMIT EXCUSES FOR NOT ATTENDING IN PERSON, DEPUTIES MAY BE SUBSTITUTED TO RECEIVE THE REWARDS, PROVIDED SUCH DEPUTIES ARE EITHER MEMBERS OF THE SOCIETY, OR THE SUPERIOR OFFICERS THEREOF.

GENERAL

GENERAL CONDITIONS.

NOTWITHSTANDING the Society reſerve to themſelves the power of giving, in all caſes, ſuch part only of any Premium as the Performance ſhall be adjudged to deſerve, or of withholding the whole, if there be no merit; yet the Candidates many be aſſured the Society will always judge liberally of their ſeveral claims.

It is required that the matters for which Premiums are offered, be delivered in without names, or any intimation to whom they belong; that each particular thing be marked in what manner each Claimant thinks fit, ſuch Claimant ſending with it a paper ſealed up, having on the outſide a correſponding mark, and on the inſide the Claimant's name and addreſs: and all Candidates are to take notice, that no claim for a Premium will be attended to, unleſs the conditions of the Advertiſement are fully complied with.

No

No Papers ſhall be opened, but ſuch as ſhall gain Premiums, unleſs where it appears to the Society abſolutely neceſſary for the determination of the Claim; all the reſt ſhall be returned unopened, with the Matters to which they belong, if inquired after by the Mark, within two years; after which time, if not demanded, they ſhall be publicly burnt, unopened, at ſome meeting of the Society.

All Models of Machines, which obtain Premiums or Bounties, ſhall be the property of the Society.

All the Premiums of this Society are deſigned for that part of Great Britain called England, the dominion of Wales, and the town of Berwick upon Tweed, unleſs expreſsly mentioned to the contrary.

The Claims ſhall be determined as ſoon as poſſible after the delivery of the ſpecimens.

No perſon ſhall receive any Premium, Bounty, or Encouragement, from the Society, for any matter for which he has obtained, or propoſes to obtain, a patent.

A Candidate for a Premium, or a perſon applying for a bounty, being detected in any diſingenuous method to impoſe on the Society, ſhall forfeit ſuch Premium or Bounty, and be deemed incapable of obtaining any for the future.

The Performances which each year obtain Premiums or Bounties, are to remain with the Society until the end of May, except as mentioned in the Conditions annexed to the Premiums offered for promoting the Polite Arts.

No member of this Society ſhall be a Candidate for, or entitled to receive, any Premium, Bounty, or Reward whatſoever, except the Honorary Medal of the Society.

Where Certificates are required to be produced in claim of Premiums, they ſhould be expreſſed, as nearly as poſſible, in the words of the reſpective advertiſements, and ſhould not be from the Candidate (ſolely), but from ſome other perſon or perſons who have a poſitive knowledge of the facts certified.

Where Premiums or Bounties are obtained in conſequence of ſpecimens produced, the Society mean to retain ſuch part of thoſe ſpecimens as they may judge neceſſary, making a reaſonable allowance for the ſame.

No Candidates ſhall be preſent at any meetings of the Society or Committees, or admitted at the Society's Rooms, after they have delivered in their Claims, until ſuch Claims are adjudged, unleſs ſummoned by the Committee.

N. B. Any information or advice that may forward the deſigns of this Society for the public good, will be received thankfully, and duly conſidered, if communicated by letter, addreſſed to the Society, and directed to Mr. More, the Secretary, at the Society's Office, in the Adelphi Buildings, London.

*** In caſe any perſon ſhould be inclined to leave a ſum of money to this Society, by will, the following form is offered for that purpoſe:

Item. I give and bequeath unto A. B. and C. D. the ſum of upon condition and to the intent that they, or one of them, do pay the ſame to the Collector for the time being, of a Society in London, who now call themſelves the Society for the Encouragement of Arts, Manufactures, and Commerce; which ſaid ſum of I will and deſire may be paid out of my perſonal eſtate, and applied towards the carrying on the laudable deſigns of the Society.

By order of the Society,

SAMUEL MORE, Secretary.

PAPERS

IN

AGRICULTURE.

AGRICULTURE.

THE following Accounts and Certificates having been received, the GOLD MEDAL, being the first Premium offered for raising OAKS from ACORNS, sown or planted between the first of October, 1793, and the first of April, 1794, was this year adjudged to SAMUEL KILDERBEE, of Ipswich, Esq.

SIR,

I HEREBY acquaint you, that, in the month of November, 1793, I planted ten acres of land with Acorns, of which the inclosed is a Certificate.

The plantation was made upon a farm in the parish of Great Glemham, in this county. The land planted, measures ten acres and ten perches; the quality of it is a dark grey loose mould, about four or five

inches deep, which in this country is called a Woodcock Soil, and lies upon a ſtrong wet clay. A ſimilar ſoil prevails in in the adjoining fields, where Oaks are free growers.

In the year 1791, the field planted was in graſs, and rented upon an average, with others of the ſame ſort, at eight or nine ſhillings an acre.

In 1792, it was broken up and ſown with oats: in 1793, it was ploughed, harrowed, and rolled at various times, and made a perfect, clean, ſummer fallow: in the autumn of the ſame year, it was ſown with wheat upon a broad ſtetch; but before the wheat was ſown, aſhen keys and white-thorn berries, of a year old, with a ſmall quantity of whin ſeeds, were thrown upon the ground, and afterwards harrowed in; and in the November following, three rows of Acorns were dibbled in upon each ſtetch, and the holes filled up by a perſon who followed the dibbler with a hoe for that purpoſe.

At the time of dibbling-in the Acorns, the graſs of the wheat had, in part, covered the ground. The Acorns were ſet at about eight or nine inches diſtance in length, and about twelve in breadth of the ſtetch from each other. The aſhen keys, white-thorn berries, and whin ſeeds, were ſown with a deſign to protect and nurſe up the produce of the Acorns, and prevent their being deſtroyed by hares or rabbits. The Acorns have produced a ſufficient number of plants, of which I had deſpaired, as they were not of the beſt quality (though the beſt that could be procured); and as the drought of the ſpring proved very ſevere, the plants are ſmall, but look healthy and well.

I was induced to ſow wheat upon the field alluded to, becauſe, in the autumn of the year 1780 or 1781, I planted a piece of land of five acres with Acorns and aſhen keys, without ſowing wheat or any other ſeeds, and a total failure took place. This piece had been long in plough tilth, and is of a better quality than that planted in the

the laſt autumn: it was previouſly made clean by proper culture; but neither Acorns nor aſhen keys ſucceeded; for the mice deſtroyed the greateſt part of the former, and the latter, having no ſhelter to protect them from the rays of the ſun, were burnt up in the following ſummer. This field was not planted again until the year 1785; but by the autumn of that year it was in good condition for the reception of wheat, and then ſowed with that grain upon a broad ſtetch. After the wheat was well up, Acorns were dibbled in, but no other ſeeds were thrown over the ground previous to it: the Acorns ſucceeded to my wiſhes; a great number of young Oaks appeared; and when the wheat was ripe, the reapers were ordered to leave the ſtubble high for their protection and defence. The wheat crop cleared upwards of thirty-five pounds, and the plantation looks thrifty and well.

The ſucceſs I had in this plantation, encouraged me to purſue a like method with that made laſt autumn, that is, by ſowing the

the land with wheat, before the Acorns were dibbled in, as in the above inſtance I had moſt ſatisfactorily experienced the good effect of ſuch a caution: and to guard againſt injury from the bite of hares and rabbits, aſhen keys and white-thorn berries, with a few whin ſeeds, (as I have mentioned) were previouſly thrown over the ground. In this caſe, I gave the tenant the wheat crop for tilling the ground, and he will be amply recompenced by it.

Some years ſince, I trenched a ſmall piece of ground two ſpits deep, in a ſoil like that planted in the laſt autumn; it was afterwards ſet with Acorns, without adding any other ſeeds: the Acorns quickly vegetated. I believe the ground was once or twice cleaned by the hoe. The plants grew in ſize and height far beyond thoſe which had been planted after common ploughings; and the ſtate they are now in gives that mode, in my mind, a decided preference.

About the ſame time that the trenched piece of ground was planted, another ſmall

piece

piece, of a like quality, was broken up, and, the flag having been regularly turned with the graſs downward, ſet with Acorns. Theſe did not ſucceed ſo well as I expected: but ſuch plants as appeared, have not been ſlower in growth than thoſe produced upon land properly prepared for wheat, yet by no means equal to the growth of thoſe ſet upon the trenched piece of ground.

From the above experiments and obſervations, it appears to me, that the beſt method, and the moſt profitable in the end, of making plantations of Oak, is, by trenching ground a proper depth; and the next, that of dibbling in Acorns upon land ſown with wheat or rye: for I think the roots of corn are a check to the ſudden growth of weeds; the graſs of it tends to preſerve Acorns from mice, and the ſtubble, when left high, affords a neceſſary ſhelter, until a better comes forward.

To the planting of young Oaks from a nurſery, I have never attended, though the practice has frequently been recommended; but

but I am inclined to believe, that no tree, which has a tap-root like the Oak, will do ſo well tranſplanted, as it will in the ſpot where the Acorn firſt vegetated and made its ſhoot.

In the year 1722, upon a farm near adjoining to that where the plantation was made in laſt autumn, three acres of land, of a Woodcock ſoil, were ſown with Acorns, and ploughed in: I believe no other ſeeds were ſown with them. To all appearance, a plentiful crop was the conſequence of it; but the trees were ſuffered to ſtand near forty years (much too long) before any were taken out: at that period I began to thin them, and continued it by degrees, until the laſt year. The quality of the land, upon which this plantation was made, has been conſidered, as to what may be ſuppoſed to have been its utmoſt annual value from time to time, as the value of land increaſed, to the preſent time, and an accumulated intereſt computed upon it: the profit received by thinning the Oaks, has alſo been calculated,

culated, and an accurate eſtimate of the value of thoſe now remaining has this autumn been made; and taking every attendant circumſtance into conſideration, I am induced to ſuppoſe, the produce in value to the landlords, from the year 1722 to the preſent time, has been equal to what the rent of the land, with an accumulated intereſt upon it, would have amounted to, had it been continued in the hands of a tenant in graſs or in plough tilth: and I am confident, that the value of the trees now left ſtanding is double to that of the inheritance of the ſoil, ſetting a full value upon it per acre, and calculating its price at twenty-eight years purchaſe.

I am preparing to plant another piece of land, of about eight acres, in the autumn of the next year; but as it is at a conſiderable diſtance, and I cannot conveniently inſpect the trenching ſo large a ſpot, though convinced of its utility, my deſign is, to purſue the mode obſerved in making the plantation in the autumn of the laſt year, unleſs the

the Society will be ſo obliging as to furniſh me with a better, reſulting from their extenſive and uſeful communications on the ſubject of planting: and wiſhing that this may convey ſome ſatisfactory information,

I remain, Sir,

Your obedient Servant,

SAMUEL KILDERBEE.

Ipſwich,
September 27, 1794.

Mr. SAMUEL MORE.

MR. DENNY is deſired to anſwer the following queſtions, as near to the truth as he can, reſpecting the planting of ten acres of land with Acorns, in the autumn of the year 1793, upon a farm belonging to Mr. KILDERBEE, in Great Glemham, in the county of Suffolk, and then and now in the occupation of Robert Berrett.

How many buſhels of Acorns were ſet upon an acre?

One buſhel and one peck. How

How many Acorns do you ſuppoſe each buſhel contained?

Seven thouſand three hundred and ſixty.

How many young Oaks do you believe there are one each acre, could they be clearly ſeen and counted?

At leaſt five hundred.

Witneſs my hand, this ſecond day of December, one thouſand ſeven hundred and ninty-four,

JOHN DENNY.

Witneſs,

WILLIAM BROWNE, Rector of Dallinghoe.

WE do hereby certify, that Mr. Samuel Kilderbee, of Ipſwich, the owner of a farm in Great Glemham, in the county of Suffolk, in the occupation of Robert Berrett, cauſed a piece of graſs land belonging thereto, of upwards of ten acres, to be fenced in and broken up:—that it was afterwards ſown with oats;—that by the

the autumn of the year 1793, it was made fit for the reception of wheat: that wheat was ſown on a broad ſtetch with aſhen keys, white-thorn berries, and a few whin ſeeds: that, ſoon after the ſowing thereof, (that is to ſay, in the month of December 1793) the whole field was ſet with Acorns, three rows upon a ſtetch, and dibbled-in after the manner of ſetting broad beans.

Witneſs our hands, this ninth day of Auguſt, 1794,

ROBERT BERRETT, Occupier of the farm.

WIILLIAM DOWNING, who dibbled the ground.

JOHN DENNY, who attended to the putting in of the Acorns, and who filled up the holes.

Several Accounts were this Seſſion produced in claim of the Premiums offered for PLANTATIONS of OSIERS: and the firſt Premium, TWENTY POUNDS, was adjudged to the Right Honourable LORD BROWNLOW; and TEN POUNDS, the ſecond Premium, to JOHN PHILLIPS, Eſq. But the Society, in due conſideration of the merit of the Paper ſent by SAMUEL CRAWLEY, Eſq. and the information contained therein on the ſubject of gaining Land from Rivers, and planting the ſame with OSIERS, have voted to him their SILVER MEDAL, as it is preſumed his communication on thoſe matters may prove of conſiderable advantage to the Public.

SIR,

MR. Samuel Edwards, of Stamford, Agent for the eſtates of the Right Honourable Lord Brownlow, near Stilton, in the county of Huntingdon, having informed us of his intentions to apply, on behalf of his Lordſhip, to the Society for the

the Encouragement of Arts, Manufactures, and Commerce, for the Premium offered by that Society to perſons planting Oſiers on their eſtates; and having deſired us to ſtate and certify the truth of certain facts relating to the Oſiers planted on Lord Brownlow's eſtate; we have therefore, in conſequence of ſuch application, troubled you with the following ſtatement.

Lord Brownlow is the proprietor of an eſtate in Farcett Fen, near Stilton, from part of which the moor or turf has lately been dug or taken out, in order to prepare the ground for planting of Oſiers; and about twenty-ſix acres, as near as we can judge, have been planted with Oſiers, the greateſt part whereof is in a very thriving ſtate. The principal part of the ground was planted in the winter and ſpring of the years 1793 and 1794: but as we are informed our ſtatement ſhould be confined more particularly to the Oſiers planted in 1794, we have directed our obſervations with greater attention to this part of the plantation; and we find that about one hundred and forty-

five thouſand Oſier-ſets of different ſorts, (namely, the common Oſier and the new kind) with ſome other ſorts, were planted in the winter and ſpring 1794, upon the ſaid eſtate of Lord Brownlow, in certain places called Conqueſt Lands, and eight roods in Farcett Fen, upon different parcels of land, not exceeding twelve acres in the whole, after deducting dikes, grips, and other waſte land, as near as we can judge upon a view thereof, and from the ſurvey produced to us by William Todd, the reſident Agent of thoſe eſtates, and other information we have obtained. And we further beg leave to repreſent to you, that the laſt-mentioned Oſiers are in general in a very thriving ſtate, many of the ſhoots being upwards of eight feet long, and now fit for the uſe of baſket-makers, as we are informed.

THOMAS BIRD, Churchwarden.
WILLIAM EDIS, Overſeer of the Poor
of Farcett, near Stilton.

Farcett, near Stilton.
Nov. 10, 1794.

Mr. MORE.

I, WILLIAM TODD, of Farcett, reſident Agent of the eſtate of the Right Hon. Lord Brownlow, near Stilton, do hereby declare that the foregoing ſtatement or certificate, under the hands of the above-named Thomas Bird and William Edis, is true; the whole buſineſs relating to the preparing the ground, purchaſing the Oſier ſets, and planting the ſame, having been under my management, ſubject to the directions of Mr. Samuel Edwards, of Stamford, the principal agent of the ſaid eſtate.

WILLIAM TODD.

I, SAMUEL EDWARDS, of Stamford, in the county of Lincoln, Agent or Receiver of the Eſtates of the ſaid Lord Brownlow, near Stilton, do hereby declare that the foregoing ſtatement, ſigned by Thomas Bird and William Edis, the Churchwarden and Overſeer of the Poor of Farcett, is true; the whole of the buſineſs relating to the preparing the ground and planting

the Oſiers, as therein deſcribed, having been planted and directed by me,

SAMUEL EDWARDS.

SIR,

I RECEIVED yours of the 9th inſtant, reſpecting the Oſiers planted on the eſtate of Lord Brownlow, in Farcett Fen; and have refered to my books, where it plainly appears to me that nine acres of the twelve were planted between the firſt of January, and the firſt of May, 1794. If this ſhould not ſatisfy your inquiry, ſhall be ready to anſwer any future one (as far as I am able) that you, or the Society for Encouragement of Arts, may require; and am,

SIR,

Your very humble ſervant,

W. TODD.

Farcett,
Dec. 14, 1794.

Mr. MORE.

I HEREBY certify, that, in the month of March laſt, at Kettleſworth, in the pariſh of Ely, in the county of Cambridge, I planted of Oſiers, fit for the uſe of baſket-makers, at the rate of between thirteen and fourteen thouſand ſets an acre, ſix acres, one rood, and thirty-five poles: and I further certify, that they have been well fenced, and are in a flouriſhing condition.

At Littleport, about two miles from my farm, there are conſiderable plantations of the ſame ſort. I frequently viſited them, with a view to my future experiments, and examined the ſoil very particularly; I found it to conſiſt chiefly of ſilth, or ſmall ſoft ſand mixed with a grey clay; and it has been ſuppoſed that they flouriſh beſt in that ſoil. There are at leaſt one hundred thouſand acres of land in the Fens which adjoin me, of black turf or peat, which upon an average are not worth each more than three ſhillings by the year: I have about one hundred acres of the ſame ſoil; and I thought it might be of great public advantage, if my

experiments ſucceeded in growing Oſiers on land of ſo little value for any other purpoſe. I found that the land which I have planted is from two to ten feet deep of peat, with, in ſome places underneath it, a gravelly ſoil, and in others, a ſtrong blue clay fit for brickmaking. I firſt intended to plough, as the cheapeſt method of preparing the land; but I was adviſed, by my neighbours, to get it dug or ſpaded. I followed that advice, and the digging coſt me three pounds an acre; the plants coſt me, from ten to fifteen ſhilling a thouſand, and the ſetting of them came to ten ſhillings an acre. There were ſix different ſorts; but thoſe moſt in requeſt, and which ſeem to ſhoot longeſt, are what is called the *New Kind*, and the *Weſt-Country Spaniard*.

It is with difficulty the two latter can be obtained in the neighbourhood, as there are many jealous of my extending my plantations, and thereby reducing the price of Oſiers, and of conſequence leſſening the value of their plantations.—Where the peat

was

was deepeſt, ſets of twenty-two inches were uſed, eight inches of which were left above ground; I ordered a few of fourteen inches long, ſeven inches of which were left above the ſurface of the land. The former flouriſhed much better than the latter, owing perhaps to the dryneſs of the ſeaſon; for although they do not ſtrike root many inches below the ſurface, the lower and decaying part ſerved to convey moiſture to the upper and growing part. Where the peat was ſhalloweſt, I planted ſome, leaving a foot above ground, and of equal depth with the others in the like ſoil: I found very little difference in point of growth between theſe, and thoſe in a ſimilar ſoil that had only eight inches above ground; but I was not obliged to weed them ſo early or ſo often, as the ſhoots ſtood farther from the reach of weeds and fen graſs. One rood and twenty-ſix perches were ſet with yearlings, although I had been told that none would flouriſh under two years old: amongſt theſe there were ſome, one length of which only

had been taken from the yearling ſhoot, and that from the loweſt and biggeſt part, the remainder having been rejected as too weak; theſe flouriſhed as well as the two-years old. There were others, two or three lengths of which had been cut from the ſhoot; but the ſlendereſt of theſe are not ſo vigorous, although quite as healthy as the former.

A ſmall part of the ground was, by way of experiment, kept quite clear of weeds and graſs; and there, I found, they did not ſucceed ſo well: the ſun was introduced, and deſtroyed the moiſture, which tends ſo much to their ſupport. When I perceived the effect, I ordered ſome cole ſeed to be ſown very thinly upon this ſpot: the Oſiers very ſoon felt the effect, and at Michaelmas they were as flouriſhing as the others. I was, however, obliged after that time to take it up, as it grew ſo large as to threaten to choak the ſhoots. It made excellent feed for the ſheep: turneps, I think, would do better.

I planted, by way of experiment, ſome upon a bank thrown up about two feet high, according to the cuſtom of the neighbourhood; but here they did not ſucceed ſo well; and I am perſuaded that, whenever the water can be conveyed off the land in ſummer, as mine is, by a mill or water-engine, they will do better than upon the level land without ditch or bank.

In the month of May I burnt the ſurface of ſome land, (in the weſt, called Denſhiring) at the diſtance at leaſt of forty yards from the plantation, and was very ſoon much alarmed at the injuries which thoſe that were next to it ſeemed to have ſuſtained; for although they were out of the reach of the fire, the ſmoke made the leaves curl, and the ſmaller ſhoots were much withered. The fire having been extinguiſhed, and a ſhower of rain falling ſoon after, they quickly recovered, and became equal to any of the others.

Having ſown this year ſeveral acres of cole ſeed, which is now feeding off with

ſheep, by which the land will be manured, I ſhall next year plough the ſurface in, and then plough a furrow deeper, in which I ſhall plant, if I can get ſets, without being at the great expence of conveying them from the bank of the Thames: this will ſave at leaſt two pounds ten ſhillings an acre.

J. PHILLIPS.

King's Bench Walk, No. 3, Temple.
Nov. 24, 1794.

P. S. I have been offered four guineas an acre annually for my plantations.

JOHN PHILLIPS, of the Inner Temple, Eſq. in the month of March laſt, planted ſix acres and upwards with Baſket Oſiers, at Kettleſworth: they are well fenced, and in a flouriſhing condition; there were thirteen thouſand and more planted on an acre.

HENRY TANSLEY.

Littleport,
Nov. 27, 1794.

SIR,

LANEHAM

Plan of the OZIER HOLTS

belonging to

Samuel Crawley Esq^r.

taken from the River Trent,

within the *Manor* of

DUNHAM,

in the County of

NOTTINGHAM.

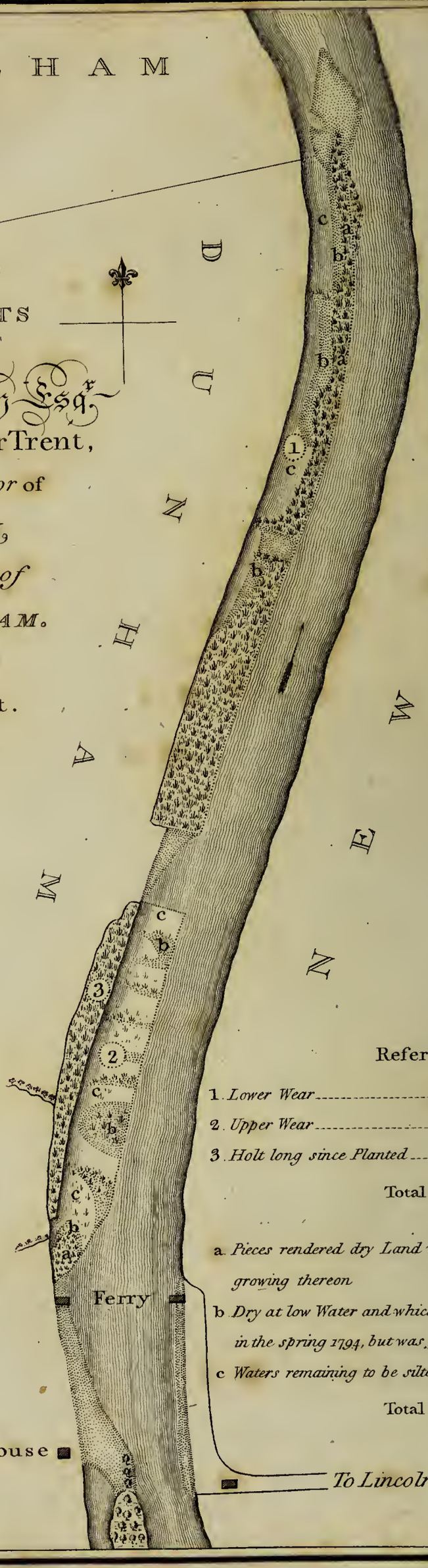
Surveyed

by W.Calvert.

1794.

DUNHAM

NEWTON



Reference.

1. *Lower Wear*	8
2. *Upper Wear*	5
3. *Holt long since Planted*	—
Total *intended to be planted*	14
a. *Pieces rendered dry Land with good Oziers growing thereon*	4
b. *Dry at low Water and which would have been planted in the spring 1794, but was prevented by Floods*	2
c. *Waters remaining to be silted up*	7
Total	14

SIR,

I SHALL be obliged to you to lay before the Society for the Encouragement of Arts, Manufactures, and Commerce, the following particulars, upon a ſubject which, I believe, comes under their plan of general improvement: ſhould it meet their approbation, and induce other gentlemen in ſimilar ſituations to profit by theſe hints, I ſhall be very happy, being perſuaded much Land may be gained, and at the ſame time the Navigation of Rivers conſiderably benefited.

In the year 1788, when I came to this eſtate, I was informed, that the Trent Navigation Company had cauſed *Weirs* to be made to confine the water, and by that means deepen the channel of the River, and that Oſiers planted thereon would be advantageous. In the courſe of that ſummer, I made all the enquiries, and got all the information I poſſibly could; keeping in view always the method recommended by the

the Society, as practiſed in Holland, for gaining the Land from the Sea: and in the ſpring of 1789 I began planting and endeavouring to gain ground, putting the work under the direction and ſuperintendence of Mr. William Calvert, a ſurveyor, of conſiderable practice in the neighbourhood, to whom I am indebted for hints of the greateſt part of the means uſed.

We began with throwing all ſorts of rubbiſh into the river, to collect the ſoil and filth in its paſſage, trying various methods to effect it: but on what we had moſt reliance, and which has completely anſwered our expectation, was on faggots made of furze or gorſe, which were ſtaked down in different ways; but thoſe made into wiers, wherever there was a current to ſtop its courſe, we found to be of the greateſt ſervice to us.

I take the liberty of encloſing, for the inſpection of the Society, a Plan * of what has been done towards making theſe plantations

* See the Plan annexed, *Plate*, No 1.

tations or holts (for the Saxon word is ſtill in uſe here), whereby they will ſee how much I have gained and planted: indeed much more Land might have been planted in the laſt ſpring, had the water ſubſided earlier.

I am, SIR,

Your moſt obedient humble ſervant,

SAMUEL CRAWLEY.

Ragnall Hall, Nottinghamſhire.
Nov. 10, 1794.

SIR,

THIS is to certify, that, in the ſpring of 1789, Samuel Crawley, Eſq. ſubmitted to my care the directions of a deſign to gain from the River Trent, near Dunham Ferry, in the county of Nottingham, a long ſlip, which, prior to the undertaking, had been fenced off by the River Trent Company with Wiers, conſiſting of two rows of ſtakes, hedged and filled up with

ſtones

ſtones above low-water mark, to contract and render the river deeper for navigation.

Having provided a great number of bundles or faggots of furze or whins (called here Gorſe Kids) they were, by means of hedge ſtakes with their ſmaller ends downwards, and about two inches of the collateral branches at the thicker end left on, faſtened down to the bottom of the River, in rows acroſs the ſlip, ſo as to form Weirs to ſtop the filth or mud: theſe wiers were placed at the diſtance of from twenty to thirty yards aſunder; and within the ſpaces, other kids were put down ſingly by the ſame method, at the diſtance of two or three yards from each other. This was only done where the water did not exceed three feet in depth; and great care was taken to ſecure the Weirs ſufficiently with ſtakes, to prevent the ſtream, at ſome times very rapid, from carrying away the kids; and alſo, to raiſe them ſo high, as to prevent the water, during ſummer, from running over. At the end of October following, on exa-

examination, we found the cavities within the kids perfectly full of ſand.

The enſuing ſpring, 1790, many Iſlands had formed within the Weirs, and great quantities of ſand had lodged below them; which were planted with healthy two-years-old cuttings of the Wicker Oſiers, commonly called the Spaniſh or New Kinds, at the rate of three ſets in a ſquare yard, making fourteen thouſand five hundred and twenty in an acre, extending the planting to the depth of two feet within the water: at the ſame time more kids were put down as before, when and where the water permitted.

In the ſpring, 1791, the Land was conſiderably enlarged: almoſt all the ſets of 1790 grew and flouriſhed, except where the water was too deep. It was then diſcovered much ground had been left by the winter floods, even where no faggots had been made uſe of, by the lodgement of rubbuſh amongſt the ſets; in conſequence of which, we only put down a few kids, but

continued planting as before: at the end of April, or the beginning of May, about two acres were planted.

In 1792 we found upwards of three acres and an half, which were planted in the ſame manner: we likewiſe diſcovered large beds of ſeedling Oſiers among the ſand and filth collected above and below the Weirs (of the ſame kind as the plants above them), where no Oſiers had been planted: theſe furniſhed us with ſets for the enſuing ſpring. In this year, the plants of 1789 and 1790 were cut for ſets, and planted.

In the ſpring of 1793 the Oſiers planted in 1789 and 1790 were cut for ſale; the ſhoots of which meaſured from ſix to eleven feet in length: the planting was continued as before; the plants of 1791 producing ſets for the ſeaſon: the whole planted this ſpring, amounted to three acres three roods and thirty poles.

The laſt ſpring, 1794, the plants of 1789, 1790, and 1791, were again cut for ſale, and

and produced a fine luxuriant crop, which was ſold at the beſt price.

The Plan herewith tranſmitted, Plate I, was laid down from an actual ſurvey by me taken; to which I beg leave to refer you for the quantity now planted; and the remainder, I hope, in a few years, will be in the greateſt ſtate of perfection.

It appears from the comparative goodneſs of the crops of this plantation, being ſuperior to the old ones in this neighbourhood, that the plants are ſupplied with much nouriſhment from the decay of the kids in which they were planted.

The plants are in general cut to the length of two feet, to ſet upon dry ground, and from two to four feet within the water, thruſt to the depth of about one foot in the ſilth.

I am, SIR,
Your very obedient humble Servant,
WILLIAM CALVERT.

Dalton, near Tuxford.
October 25, 1794.

Mr. MORE.

I DO hereby certify, that I have ſeen the Oſier plantations of Samuel Crawley, Eſq. at Dunham, during the proceſs of gaining them from the River: I think they are in a very flouriſhing ſtate, and have every reaſon to think Mr. Calvert's report to be accurate.

I am, SIR,

Your humble ſervant,

Mr. MORE. GEORGE NEVILL.

THIS is to certify, that, under Mr. Calvert's directions, I have ſuperintended the workmen employed in planting and cutting the holts, or Oſier plantations, of Samuel Crawley, Eſq. below Dunham Ferry; that the land cut the laſt, and this year, was very productive; the rods were of an excellent quality, and fetched the beſt prices; and that the youn g ones, not yet cut, are in a very thriving ſtate.

I am, SIR,

Your moſt humble ſervant,

North Clifton, WILLIAM CHAPMAN.
October 27, 1794.

Mr. MORE.

The following Accounts and Certificates having been received; the GOLD MEDAL, being the first Premium offered for planting mixed TIMBER-TREES, was this Session adjudged to THOMAS RAWLINSON, of Morecambe Lodge, Lancashire, Esq.

SIR,

I WAS favoured with your letter of the 23d of May, 1792, in consequence of my worthy deceased and much-lamented friend, Lord George Cavendish, communicating to you my letter to him, on my plantations, and who recommended me to present them to the Society for Encouragement of Arts, Manufactures, and Commerce. I now take the liberty to give you an account of the plantations and improvements I have made.

In February, 1791, I purchased an estate at this place, that had fifty-eight statute acres of common, very much covered with

ſheets of limeſtone rocks, and large limeſtone cobbles; about twelve acres ſo hanging and rocky, not worth half-a-crown an acre, but having moſtly between the rocks one or two feet of ſoil. I concluded to plant it with the hereafter-mentioned trees; and the whole, except about an acre and a half, is encloſed to the weſt, at the top of the hills, with a ſtrong wall, five feet and a half high; and at the foot, to the eaſt and ſouth-eaſt, with a three to three feet and half wall, planted with quicks within; and the acre and half is protected by walls, from any cattle, except ſheep, which are not allowed upon the eſtate. The ſoil is fine brown earth; and the manner of planting was, by taking a ſquare ſod, of about two inches thick, where the ground allowed it, and digging a hole ſufficient for the plant. Particular attention was paid to the Oaks, that there might be plenty of ſoil for the tap; and I have the ſatisfaction to ſay, the whole of the plantations are much better than I flattered myſelf;

ſelf; the dead plants not being, on an average, three to one hundred. Thoſe principally that failed, were the Birches, owing to their coming from a diſtance, and in froſt.

The Larches and Scotch Firs have ſhot greatly, eſpecially the former, which this ſoil and ſituation beſt ſuits; the diſtance in planting is from two to four feet: I commenced planting the 5th of November, 1791, and finiſhed the whole by the 10th of April, 1792. By clearing the land to make the plantation walls, and ſince by encloſing ſeveral fields, and improving by lime and compoſt, I have made forty-one acres, fine, arable, and paſture land; the remaining five acres are in ſheets of rock, or not cleared.

You will, encloſed, receive Mr. Jenkinſon's Certificate, who overlooked the planting; and which is alſo ſigned by Mr. Horrabin, a reſpectable gentleman in this place. I preſume, theſe will be ſufficient for you to lay before the Society, if worthy

their notice; and refer you to Mr. Jenkinſon for further information, if requiſite.

I am preparing to make a further conſiderable plantation and improvement upon forty-four acres of common I have lately purchaſed, and mean to go chiefly upon Larches, as the moſt encouraging.

I am, SIR,

Your aſſured friend,

THOMAS RAWLINSON.

Morecambe Lodge, Yealand,
Oct. 30, 1794.

Trees planted by Thomas Rawlinſon, Eſq. at Yealand, between the 5th of November 1791, *and* 10*th of April,* 1792.

20170	Aſh,	3900	Elms,
18910	Oaks,	3940	Birches,
2310	Sycamores,	705	Weeping Birches,
2300	Beech,	312	Weymouth Pines,
2010	Spruce Firs,		
2900	Larches,		
3650	Scotch Firs,		

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300	Huntingdon Willow,	70	Balm of Gilead Trees,
200	Hornbeam,	70	Silver Firs,
110	Pine-aſters,	64	Cheſnuts,
100	Seals,	40	Aſpins,
80	Black Cherry Trees,	25	Walnuts,
		25	Spaniſh Cheſnuts.

62,191 Trees.

SIR,

I HAVE juſt received a letter from Mr. Thomas Rawlinſon, who is now removed to Lancaſter, for the winter; he mentions, that he had written to you in regard to his plantation; and that one Mr. Horrabin, of this place, a gentleman retired from buſineſs, he requeſted with myſelf would certify to you the ſtate of his plantation at preſent. By this, therefore, we aſſure

aſſure you, that we do not in the leaſt doubt that the incloſed catalogue, as given by Mr. Rawlinſon, is juſt. The ground, where he has made his plantation, was for the moſt part of a very trifling value: to many places, ſoil from ſome potatoe-ground was carried, to plant the trees in, among the rocks, which makes the trees grow well. Had the Oaks and Aſhes been planted in cultivated ſoil, it would have added much to their preſent growth.

Very few of the trees have died, ſcarce more than two or three in the hundred, except the Birch, in which plants Mr. Rawlinſon was not well ſerved; but thoſe that live now flouriſh well, as does the Larch, and different ſorts of Fir. Many of the Larches and Scotch Fir have grown this year ſixteen or eighteen inches, ſome more; the Aſh and Oaks that were ſmall plants, as many of them were, do not ſhoot much; numbers have loſt part of their tops, and ſhoot out below; but as they gather ſtrength, or are cut off below the dead part, there is little

doubt

doubt but they will ſoon flouriſh. A trial of cutting them off a little above the ground was made on a few this ſpring, which anſwers well; the ſtrong plants with the Sycamore do very well with the other plants.

We are yours moſt aſſuredly,

RICHARD HORRABIN.
JOHN JENKINSON.

Yealand, Oct. 30, 1794.

Mr. MORE.

The

The Thanks of the Society were given to THOMAS SKIP DYOT BUCKNALL, Esq. for the following Communication relative to ORCHARDING, which may be considered as supplementary to his Papers on the same subject, already published in the Eleventh and Twelfth Volumes of these Transactions: and the Society, convinced that it will be of great advantage to have the Orchards in the several parts of the Kingdom brought to the highest possible degree of perfection, have this year offered very considerable Premiums for that purpose. See Classes 74, 75, 76.

SIR,

I BEG you will convey my best acknowledgements to the Society for the Encouragement of Arts, Manufactures, and Commerce, for the regular attention they have been pleased to shew to the Papers I have

have had the honour to lay before them, on the ſyſtem of Cloſe-Pruning and Medication, as expreſſed in my letters, inſerted in the Eleventh and Twelfth Volumes of their Tranſactions; and for the very handſome Premiums offered by them, in conſequence of thoſe communications: and I hope, like the other uſeful branches, which have been at firſt foſtered, and then brought to perfection by their attentive care, this will produce elegance throughout the plantations of Fruit-trees in the Kingdom, and general good to the community at large.

In this I will add ſuch further hints as may conduce to guard the planter from diſappointment. Let it be obſerved, I do not retract in the leaſt the ſtreſs I before laid on ſhelter, nor the neceſſity of the ſoil being well choſen, with proper aſpect.

It is generally imagined, that when the trees are planted, the troubleſome part of forming an Orchard is over: but the fact is far otherwiſe; for a greater difficulty remains, which is, to determine what pro-

per uſe to apply the ground to; for if it is cultivated by the plough, little good can be expected; for the injuries which young trees conſtantly receive from implements in huſbandry bruiſing and deſtroying them before they can have got full poſſeſſion of the ſoil, generally hurts them moſt eſſentially; and if, by a ſuperlative care, they ſhould ſurmount the evils ſo brought on, the crops of corn being regularly carried off the land, impoveriſhes the ground ſo much, that the trees are ſoon ſtunted, and run to moſs.

There is not any culture we are acquainted with, equal to hops, for raiſing an Orchard; and when the proper time comes for grubbing up the hops, the trees may be ſecured, and the land turned to grazing. However, let the agriculture be what it may, the land ſhould never be ploughed, or dug deep, directly over the roots of a young-planted fruit-tree; for as the roots collect their beſt benign ſap from their extreme points, if thoſe points are broken off from

the upper ſide of the roots, that tree is compelled to ſubſiſt on nurture drawn from the under-ſtrata, and conſequently the ſap will be of an inferior quality.

It may be regularly obſerved, that, where trees ſtand in ſuch a ſituation, that the hogs and poultry are conſtantly running over the ground, thoſe trees very ſeldom fail of a crop, which is the beſt proof that manure is neceſſary; and any manure will ſuit an Orchard: but there are ſeveral ſorts of manure which are overlooked, ſuch as the ſweepings of cowhouſes, ſlaughterhouſes, emptying of drains, and every thing filthy; and theſe are more diſpoſed to facilitate the growth and health of fruit-trees, than the manure from the ſtable.

An eſſential circumſtance to be attended to is, that the fruits be ordered of thoſe ſorts which thrive in the neighbourhood where the plantation is intended to be made, and a ſtrict regard ſhewn to that purpoſe, as the beauty and value of the whole Orchard will greatly depend upon the

the trees being well ſuited. There is a ſtriking inſtance of this at Sittingbourne, and its neighbourhood: the lemon pippin is invariably a fine thriving tree, and the ſummer pearmain as conſtantly ragged and out of health; and this obſervation may be applied throughout the whole range of fruit-bearing trees, according to the ſoil and ſituation.

The ancient Orchards of Kent, which were moſtly grubbed up about fifty years ſince, produced the Kentiſh pippin, lemon pippin, ruſſet, cat's-head, and other hardy-keeping fruits; but as the age refined in luxury, the more delicate apples were introduced. The ſharp north-eaſt winds, in many ſituations, were certainly too ſevere for theſe productions: though I entertain no doubt but this appearance of a caprice or particularity in nature, may by attention be in part corrected, though any attempt to point out the cauſe would lead me too far from the preſent ſubject.

Care

Care ſhould be taken, not to ſuffer trees to bear much fruit while young: it ſhould be gathered as ſoon as ſeen, except about half a dozen, to ſhow the ſize and quality. The young trees being kept clear, will give them, if I may uſe the expreſſion, the habit of producing larger and finer fruit: but that is not the material reaſon; by being kept clear, the leading and collateral branches run ſtronger each year; and be aſſured, if the tree can be brought to a proper ſize, there will be no doubt of its bearing afterwards. Obſerve among thoſe gentlemen who pride themſelves for being maſters of fine ſtock, either horſes, cattle, or ſheep, and you will find, the governing principle with each of them, is to run the young ſtock to as *long bone* as poſſible in the firſt year; knowing, from experience, that having once ſecured bone, fleſh, figure, and ſymmetry will follow. Such trees as ſuit the ſoil may, by eaſy means, be induced to grow to a ſize beyond what we imagine: let the land be grazed or manured, and

gather the fruit before it can be applied to any uſe. How long this cuſtom ſhould be continued, each Orchardiſt muſt judge for himſelf; but no one will have the leaſt chance for the prize, who does not take off the fruit for ſome time at leaſt.

There is no impropriety in deeming the heads of fruit-trees, as ſo many hemiſpheres: only ſuppoſe it poſſible, by any art, to induce each of the branches of one tree to grow two inches longer than thoſe of another tree in the ſame year; that free-growing tree will, in eighteen years, double the head of the other: ſo much for ſize. Health is the certain conſequence.

No young plant, or newly-engrafted tree, ſhould be ſuffered to run *mop-headed*; for until each branch has acquired a determined leader, that tree will make no progreſs; and a tree, like an animal, if it takes a ſtunt, it is difficult to throw ſuch energy into the ſyſtem afterwards as will make it free-growing.

It

It has been objected, that if no leading branches are to be ſhortened, the nurſery-man could not form the ſtems to ſupport the head.

Undoubtedly, while the plants are in the nurſery, the ſlighteſt practitioner knows that the head muſt be cut down, to give ſtrength and ſymmetry to the ſtem; and it is alſo neceſſary that moſt of the grafts be ſhortened, or the wind will blow them out; and during the time the plants are in an infant ſtate, ſhortening helps to ſwell out the buds. It was never meant to exclude ſhortening, until the plant was become a tree; and it is perfectly within the nurſery-man's art to produce all his ſtandard fruit-bearing trees with ſtems large and ſmooth, buds full and round, and leaves broad and open, without the tree being liable to canker, or gum; and this is given as the character of a perfect and valuable tree.

Moss.

One of the greateſt obſtructions to good Orcharding is Moſs, which is merely the

reſult of poverty and neglect, reflecting a diſcredit on the owner. Where trees are much overrun with Moſs, a ſtrong man with a good birch-broom, in a wet day, would do great execution. But to enter more into the buſineſs, what is Moſs? a plant; and, like other plants, may be eradicated on the firſt appearance: for that purpoſe, on young trees, the beſt method is to rub all the branches, ſpring and autumn, with a hard ſcrubbing-bruſh and ſoap-ſuds; and the action of rubbing will ſo far invigorate the tree as to overpay both trouble and expence. There is no damage can befall the tree from rubbing; and let it be performed as a groom does a horſe's legs.

Certainly the beſt ſoil to plant on is a fine deep loam; and no one, for profit, would think of planting on a ſtrong clay, chalk, or a cold ſharp gravel: but where a gentleman, for the embelliſhment of his reſidence, would wiſh for an Orchard on either of theſe ſoils, never dig into the under-ſtrata; for that would

would be placing the trees in ſo many well-holes, where certain deſtruction muſt enſue; therefore, rather plant the trees above-ground, raiſing over it a little mound of good freſh mould, about as large as an extenſive ant-hill, under a curve of eight inches by ſixty, and ſow the top with white Dutch clover.

Canker.

In pruning, the medication ought never to be omitted; for, from experience, the mercury is found to be ſo ſtrongly operative in removing the baneful effects of Canker in the more delicate fruit-trees, that it may be preſumed to enter into the economy of the plant, giving a ſmoothneſs to the bark and freeneſs of growth; proofs of which will be produced to the Society in a few years, by perſons who have attentively conſidered the ſubject.

I ſhall here give an abſtract of the ſyſtem of cloſe-pruning and medication, as before

laid down, that it may be ſeen at one point of view.

Let every ſtump, the decayed or blighted branches, with all thoſe which croſs the tree, or where the leaves curl, be taken off ſmooth and even; pare down the gum cloſe to the bark, and rather a little within, but not to deſtroy the rough coat; open the fiſſures, out of which the gum oozes, to the bottom; cut away the blotches, and pare down the canker; then anoint all the wounds with the medication, ſmearing a little over the canker, which was not large enough to be cut; ſcore the tree, and rub off the moſs; but do not ſhorten a ſingle branch: follow the ſurgeon's rule, go to the quick, and no more; act with obſervation, and each practitioner will improve the ſcience.

A tree under ſuch care, muſt, with its remaining free ſhoots, run large, which requiring a great flow of ſap, will keep the roots in conſtant employ, and from that very ſource neceſſarily eſtabliſh permanent health.

SIR,

IN this public manner I desire of you to accept my thanks, and assure the Society they will always command my best regards.

Your humble servant,

THOMAS SKIP DYOT BUCKNALL.

Hampton-court,
April 20th, 1795.

P. S. Where the only object is to remove the canker, I find hog's lard preferable to tar; but where the wet is to be guarded against, tar is superlatively better.

The Thanks of the Society were given to WILLIAM HAMPSON, Esq. for the following Communication on the subject of DESTROYING INSECTS in ORCHARDS, &c. which is here inserted as serving to confirm the doctrine laid down in the foregoing Paper on Orcharding, by Thomas Skip Dyot Bucknall, Esq.

SIR,

BY laying the enclosed paper before the Society for the Encouragement of Arts, Manufactures, and Commerce, you will oblige,

SIR,

Your most obedient servant.

WILLIAM HAMPSON.

Dewsnop, in Duckenfield,
near Manchester.
Feb. 11, 1795.

On

On the Means of preventing Caterpillars on Fruit-trees.

IT will not appear foreign to the ſubject, if ſome general obſervations which are well known to thoſe who have the management of fruit-trees, and more particularly the apple, precede an account of the means here diſcovered for preventing the deſtruction often occaſioned by the ravages of the Caterpillars. 1ſt, A winter, in which there is a ſevere froſt for a long continuance, is accounted favourable to the ſucceeding fruit-harveſt. 2dly, Young and healthy trees, which are continually diſtending the rind, and putting forth vigorous branches, are not often attacked with the Caterpillars; or if they are, it is when the foliage of an aged or ſickly neighbour is exhauſted, and then being urged by want of food, the worn throws out its ſilken line, which, carried by the wind, clings to the branches of another tree, and by this means it effects a paſſage.

Some-

Some time ago, having an intention to improve a number of apple-trees, which, owing to their being yearly infeſted with the Caterpillar, had been long neglected, I began in the following manner. It being early in the ſpring, I firſt cauſed the thick brown moſs to be removed from the trunk of the tree, around which, but at a diſtance equal to the extremities of the roots, I ſpread warm rotten litter; and then, with the back of a pruning knife, ſcraped off the livid-coloured moſs with which the branches of the tree were entirely encruſted. But what ſurpriſed me, and to which I would beg particular attention, was, that ſmall detached pieces of moſs hung upon the bough by fine threads, after it had been cleaned: this led me to think they belonged to ſome eggs or inſects which lay concealed between the moſs and the outer bark, or between the outer and the inner rind; but being then without the help of glaſſes, my curioſity remained unſatisfied, although the effects diſcovered in the opening ſeaſon juſti-

juſtified my ſtrongeſt apprehenſions; for thoſe trees which had been thoroughly cleaned, put forth ſtrong and healthy ſhoots, and retained their leaves; when others, their neighbours, were eaten up: yet what convinced me beyond the leaſt doubt, was a tree which through negligence had been left in part cleaned; the boughs which I had cleaned were untouched by the Caterpillar; on the contrary, the leaves of thoſe boughs I had not cleaned, were ſoon conſumed by them.

Theſe facts being ſtated, the following remarks are naturally ſuggeſted. Firſt, that the eggs of the Caterpillars lie, during the winter, concealed in ſuch trees as are overgrown with moſs, between the moſs and the rind, or, where the rind is decayed, in the cavities occaſioned by ſuch decay; a circumſtance which, with the aſſiſtance of a microſcope, I have ſince aſcertained: but through mere neglect, having not preſerved the eggs for future obſervation, I cannot ſay determinately they were the eggs of the

Cater-

Caterpillar; but this I can ſay, that the removal of thoſe eggs prevented the leaves of the tree from being eaten. Secondly, that the proper time for deſtroying them would be before the eggs are hatched; for, by the time the Caterpillar is come out, the buds begin to open, and of courſe become its immediate prey; and as the butterfly-tribe are ſo numerous and ſo perfectly free from reſtraint, the nature of the caſe will require an annual ſearch to be made in ſuch places as are thought favorable to them for depoſiting their eggs: there will be often found full-grown trees, which by being encumbered with branches, the power of the ſun is not admitted to ſhrivel the old rind as the new one is forming; conſequently ſuch trees become encruſted with decayed coats, the fit receptacles for preſerving the embryo Caterpillars; and ſuch trees whoſe wounds have been ſuffered to heal, ſo as to form an hollow, retaining moiſture, which cankers the wood, and renders it eaſily perforated by the fly, are likewiſe lia-

ble to become a prey to the insects they have preserved.

The above observations are offered as hints only, on a subject capable of deriving more advantage from those who enjoy greater opportunities to investigate, and ability to inform, than what has fallen to to the lot of their author; and it is with this presumption they are offered to a Soeiety, the members of which have it in their power to employ them to the best advantage, namely, that of the public good.

The following Account and Certificate having been received; the GOLD MEDAL, being the firſt Premium offered for the Culture and Cure of the TRUE RHUBARB, was this year adjudged to Mr. JOHN BALL, Surgeon, of Williton, in Somerſetſhire; whoſe former Papers on the ſame ſubject are inſerted in Vol. XII. page 229.

THIS is to certify, that Mr. John Ball, Surgeon, of Williton, in the pariſh of St. Decumans and county of Somerſet, has cured this year ninety-ſeven pounds of the Rheum Palmatum, or true Rhubarb, of his own growth; and, as he believes, equal to ſuch as is commonly uſed or known by the name of Turkey or Ruſſia Rhubarb; and that the whole is of the

ſame

ſame goodneſs with the five pounds ſent herewith as a ſample.

HUGH TORRINGTON, Churchwarden.
JOHN PULMAN, } Overſeers.
JAMES WOOD, }

The Culture as follows.

I ſow the ſeeds about the ſecond week in February, in drills ſix inches apart, and one inch deep, upon beds of three or four feet: if the weather ſhould prove mild, the plants will appear in a fortnight or three weeks; and if it is a dry ſeaſon, I give them moderate waterings; if too thick, thin them from two to three inches; and when about four inches high, tranſplant them where they are to ſtand, from four to ſix feet from each other, in a deep ſoil, well manured with good rotten dung, ſifted coal-aſhes, and lime previouſly ſlaked, and mixed with a proper quantity of mud, or waſte from a mill-pond, or with earth from the guttering of meadows. I keep them free from

weeds, and, if occaſion, give them moderate waterings; am particularly careful to keep them free from ſlugs, they being exceedingly fond of the tender plants, and would ſoon deſtroy them, if not attended to; for which reaſon, I generally look over the plantations every night about eight o'clock, and take them away, and ſo continue until I find the ſlugs are all deſtroyed, and the plants have taken good roots.

For theſe two years paſt, I have ſown ſeeds in September; and the firſt week in October they came up, grew exceeding well, and made good roots, fit to be tranſplanted in the laſt week in February or beginning of March; and am of opinion, that this is the beſt time for ſowing them.

The Method of Cure.

I take the roots up, upon the ſtalks withering or dying away; clean them with a dry bruſh, and cut them in ſmall pieces; ſtring them on a packthread, keeping every piece apart, and hang them acroſs poles

fixed

fixed to the cieling in a kitchen, where there is a conſtant fire; which I now find to be much ſuperior to the open air and ſun (which had been my uſual method for theſe ſeveral years paſt), not having had one rotten or moulded piece this year.

The following Account and Certificates having been received; the first Premium, being the GOLD MEDAL, or the SILVER MEDAL and TWENTY GUINEAS, at the option of the Candidate, was this Session adjudged to MR. HENRY HARPER, of Bank-Hall, Kirkdale, Lancashire, for improving Seventy-five Acres, of Eight Yards to the Rod, of WASTE MOOR LAND. This Candidate made choice of the SILVER MEDAL and TWENTY GUINEAS.

An Account of the inclosing and improving seventy-five acres, of eight yards to the rod, the whole of Bootle Marsh, for which I agreed with the proprietor for a lease for twenty-one years, and by the agreement was to inclose and improve all the improvable land, according to a plan drawn up for that purpose; and to find all gates, &c. pay all taxes, that it may be charged with during the lease.

THE soil a white poor sand, adjoining the sea-shore, along the River Mersey, which

which empties itſelf into the Iriſh Sea: the weeds it produced, chiefly poor friz, gorſe, and bent: the value of it, and another marſh, called Linecre-Marſh, was thirty pounds a year, which amounted to four ſhillings and ten-pence per acre, of eight yards to the rod; on which they kept a few half-ſtarved cattle, and the gorſe chiefly cut and ſold to perſons who ſent it to Liverpool, where it is uſed for ſweeling ſhips*. I had them both together for three years, for the thirty pounds a year; and then Linecre-Marſh went from me; and I was, by the agreement, to give ſixty pounds a year for my leaſe of Bootle-Marſh only.

I agreed for it in the year 1778; and then I began incloſing and improving, and finiſhed all the improvable land in the year 1780.

Marling was the firſt improvement, at the rate of ſix rods and a half per acre, each

* After a ſhip's bottom has been paid with tar, fat, &c. a flame from a tar-barrel or gorſe is expoſed to the ſurface, to melt it ſo as to run into the ſeams.

rod containing ſixty-four cubical yards; then dung according to the crops taken. The firſt crop taken was wheat, on the drieſt parts, with once ploughing; ſown broad-caſt, and no dung; produce, five quarters per acre. The firſt crop taken from the parts not quite ſo dry was barley, ploughed three times, ſown broad-caſt, with a little dung; produce, ſeven quarters and a half per acre; ſkim-fallowed before marled. The wetteſt part, oats, ſown broad-caſt, with once ploughing; produce, eight quarters per acre. When the ſeaſons have been dry in May and the beginning of June, the crops have been light, and in ſome places all burnt up; but when the month of May and the beginning of June have been ſhowery, the crops have been good.—The general averages have been,

	Qrs.
Wheat, from a ſummer fallow,	8 *per acre.*
Wheat, from clover, ploughed one, two or three times, or from a clean ſtubble of white corn,	6 ditto.

Barley,

	Qrs.
Barley,	7 *per acre.*
Oats,	8 ditto.
Clover, three tons per acre.	

The Size of the Fields.

	A.	R.	P.
New Close,	10	2	2
Big Marsh, Delf Field,	19	1	36
Bull Field,	5	0	0
Little Field,	2	3	36
Land-mark Field,	8	1	15
New-mill Park,	5	2	33
Little Croft,	0	0	30
Corner Croft,	0	2	32
Lower New Close,	5	0	37
	58	0	21 at

Twenty-two pounds fourteen shillings and one penny per acre, is £. 1316 16 10

Unimprovable, but inclosed.

Lower Marsh,	5	0	0
Long Marsh,	11	3	19
	16	3	19

Expence of inclosing	25
Total expence on seventy-five acres,	£. 1341 16 10

The fences are cop, and ditch, five feet wide at top, two feet and a half deep, and two feet wide at bottom; cop, four feet high. About one half of the fences is gorſe ſeed ſown in a drill near the top of the cop; and where it comes on, it makes a good fence: the other half is poſts and rails ſet on the top of the cop.

The average value of the fifty-eight acres twenty-one perches, laid down for graſs, is now two pounds fifteen ſhillings per acre, of eight yards to the rod: I have marled ſixteen acres of it a ſecond time, at the rate of eight rod to the acre; which anſwers every expectation I had formed of it. Till Mr. Holt, the Surveyor of Agriculture for Lancaſhire, informed me, I did not know there was ſuch an inſtitution as the Society to whom I now addreſs myſelf, or I might have ſent the account before this time; and Mr. Holt thought ſuch an improvement ſhould be more known.

HENRY HARPER.

Bank-Hall, Kirkdale,
Nov. 26, 1794.

Mr. MORE.

WE have been well acquainted with the land above mentioned, both before and after Mr. Harper's improvement, and believe the account given to be true and juſt.

HENRY HEATHCOTE, Rector of the Pariſh of Walton on the Hill.

JOHN HOLT, Surveyor of Agriculture, for the County of Lancaſter.

The SILVER MEDAL and EIGHT GUINEAS were this Seſſion voted to Mr. JOHN JENKINSON, of Yealland, in Lancaſhire, for his IMPROVEMENT of LAND, allotted to him on the Incloſure of the Commons in that part of the County, as deſcribed in the following Papers,

DEAR FRIEND,

THE many rewards the Society for the Encouragement of Arts, Manufactures, and Commerce, have held forth to the Public, have been of great ſervice; and your politeneſs in encouraging me to offer myſelf a candidate for their favour in the agricultural line, makes me preſent the following particulars to you; which, if they ſhould merit the Society's notice, will give the greateſt pleaſure to your moſt aſſured and reſpectful friend,

JOHN JENKINSON.

Yealland,
Oct. 27, 1794.

Mr. MORE. BY

BY virtue of an Act of Parliament, we began the incloſure of the Commons within the two Yeallands, in the north of Lancaſhire, ſixteen years ago.

The allotments which the Commiſſioners aſſigned to me, were in three places; two not inconvenient to my houſe; the third, near ſeventy acres, about three miles diſtant. The whole, one hundred and ſix acres.

The ſoil, where not rocky, is in general a good hazel mould; ſome rather loamy in the diſtant lot; none ſandy or gravelly. Many of the plaineſt and beſt parts produced, in abundance, the common braken, or bracken; and in moſt places were great quantities above ground of ſingle lime-ſtone rocks of all ſizes; the largeſt ſort required to be ſeparated by gunpowder, before they could be removed, or the land ploughed.

Being fully convinced that the common in its natural ſtate would not anſwer any good purpoſe, I immediately began to let off ſeveral parts, to be cleared of the ſtones; which

which, when broken up, made good fences of them to divide my allotment into fields, and ſeparate them from my neighbours. By this means my land was cleared, and I got good fences.

To bring the land into cultivation, various methods were tried, but paring and burning ſoon became the general mode, in the firſt inſtance, for a crop of rye or oats; which ſcarce ever fails. In my ploughing among the brackens, I gave orders to plough with a good hold, in order to break the roots: one perſon, willing to do his buſineſs with more eaſe than judgment, ploughed ſhallow: his crop ſuffered greatly by the brackens; the trial cured him: the brackens run their roots like a net a few inches below the ſurface, which ought to be broken by the plough.

Some others as well as myſelf, after paring and burning, ſowed wheat or barley; but the crops did not anſwer. Turneps anſwer equally well as rye or oats: I alſo tried ſummer fallowing in the firſt inſtance,

tilling

tilling the ſame with a compoſt of lime, earth and dung; the crop of wheat good, and the next crop better than the ſecond, after paring and burning.

In many places, we planted quickſet fences, where not too much expoſed to the ſea-wind; the ſides of the ditches or banks made of ſtone about three feet high, the inſide filled with earth, in which the quick-ſets were planted: at firſt I ſet the ſtone-walls on the ſurface, but ſince found it much better to take the earth out a ſpade deep: it makes the wall ſtand firmer, and the earth thrown out ſerves for a compoſt.

The two allotments near home being divided into fields, the parts moſt free from ridges and beds of rocks I cultivated and broke as before mentioned; but the part ſituated among the ridges and beds of the lime-ſtone rocks, and not capable of being ploughed with any degree of eaſe or profit, I covered with lime or compoſt. Both ways anſwer well; but a good compoſt of earth, lime and dung, I prefer to lime alone: lime

lime itſelf, I ſet on at about ſix yards to the buſhel of twenty-four gallons.

My other lot, at a diſtance, I kept a few years in my own hands, dividing it into fields, and bringing it into cultivation; ſince which I have let it, and built a houſe and barn thereon: one place, of about ſeven or eight acres, being moſtly rocks and bruſh-wood, made out for a wood: in the firſt place, cut the natural wood, moſtly hazle, for it to ſpring afreſh: in the vacancies I planted ſeveral thouſand trees, nine or ten years ago; the birch and alder (or what in this country is commonly called the eller) grow well; but the aſh and oak get forward very ſlowly, though now they begin to grow more freely. The ſituation not very favourable, being much expoſed to the Weſtern Ocean, or rather the Bay of Morecambe.

In my allotment near home I have planted at leaſt a dozen ſmall plantations of trees, in which the Scotch Fir anſwers beſt: the Spruce I find the worſt; it will

do

do nothing, except in a very ſheltered ſituation: the Larch is the quickeſt grower, but, if expoſed to our weſterly wind, little better than the ſpruce. In one plantation I planted the Sycamore to the weſt; but the Scotch Fir ſtands better.

The method I took to deſtroy the brackens in the land not ploughable, was, for ſeveral years after the incloſure, to mow them twice in a ſummer, which has ſo effectually annihilated them, that now a boy would carry the growth of ſeveral acres on his back.

Courſe of Crops in general.

1ſt. If a dry ſpring, that the paring can be got burnt, early oats, if not rye, at Michaelmas.

2d. Late oats, or barley, if manured, ſown with clover.

3d. If oats laſt year, then moſtly ſummer fallow; but I prefer turneps, then oats or barley.

4th. Wheat.

5th. Oats, or barley.
6th. Clover, white or red; if red, break up after one year for oats; ſome after two, but not ſo well.

N. B. Taking up the commons did not leſſen the value of the old incloſures, ſo that what the proprietors of land got for their common-right was clear gain.

We believe the above is an exact account,

JOHN FORD.
JAMES JENKINSON.

Lancaſter,
October 20, 1795.

The

The SILVER MEDAL was this Seſſion voted to Mr. JOHN MIDDLETON, for the following Communication relative to the Culture of CLAY SOILS.

SIR,

AS the cultivation of Clayey Land in a ſtate of aration is confeſſedly leſs underſtood, than the management of turnep and barley land (ſandy land), I propoſe it ſhall be the buſineſs of this paper, to point out a method of doing it with nearly equal facility, and with more profit, than is uſually done by the beſt methods now practiſed on ſandy lands; and that the courſe ſhall be calculated to completely annihilate the ſyſtem of fallow years, by the adoption of a four-years courſe—of, 1ſt, winter tares;—2d, oats;—3d, clover;—4th, wheat.

Tares have not been eſtimated ſufficiently high in any account that has yet come

come under my eye. Valuing them as green food at about the price of turneps, at thirty, forty, or fifty ſhillings an acre, does not by any means do them juſtice: they are convertible into hay, generally containing as much food, and better in quality than the beſt meadow.

Not many perſons grow them; and thoſe who do, have uſually had only an acre, or two or three, giving them green to horſes; and the remainder, when any, perhaps half an acre or an acre, made into hay, though more generally ſtanding till they are ripe, and threſhed for their ſeed.

The method which I am now recommending is, to ſow tares over one fourth part of all the tenacious arable land of a farm; and let them be nearly the whole, or the only food given to the farmer's ſtock, as long as they will eat them without waſte, which will be until the tares begin to decay at bottom. Mow all the reſt when the pods begin to form, and make them into hay: a pretty good crop will produce three tons per acre,

acre, equal in quality to ſainfoin, and ſuperior to every other; uſually worth twenty ſhillings a load above the price of the beſt meadow hay, made or cured equally well.

I had about eighteen acres of winter-tares laſt ſummer; fed ſix, and made twelve into hay, containing full thirty-ſix loads, worth five guineas each, or fifteen guineas per acre, in the ſaving meadow hay and corn, which ſeems to me to be a correct method of eſtimating the value of tare and clover crops.

As faſt as the ground is cleared of tares, to the extent of about an acre, let it be ploughed; and as ſoon as the whole field is thus cleared of tares and ploughed, let it be harrowed, reploughed and harrowed, the couch repeatedly picked and burnt, till it be rendered clean as the beſt fallow could make it; and while it is dry, before the autumnal rains ſet in, plough it into ridges that are beſt calculated for keeping it dry (I eſteem thoſe ridges of the beſt ſize for this purpoſe, that are about three feet wide, and made by two bouts of the plough):

water-furrow it, and thus leave it through the winter, until oat-ſeed time, at the earlieſt period of which harrow in oats and clover; the crops of both will be abundant.

I here recommend weeding the clover, and all hay-crops, about a fortnight before mowing time: the quantity of ſmother will deſtroy ſome of the weeds, and check all the reſt.

The oats being reaped in the ſecond year, and the clover mown once or twice in the third; plough in ſeed-wheat, covering it by a thin and narrow furrow: and note, that here again I prefer its being done into ridges of three feet wide, made up by two bouts of the plough, which, I think, ſecures a quicker and more perfect drainage than can be done by ridges of any greater width. The water-furrows being well opened, the whole will be dry through the winter, and in due time there will be a plentiful crop of wheat.

The wheat being reaped, manure all its ſtubble; and in September plough in tares, covering them by a thin and narrow furrow.

The

The ploughings are given the land in a dry ſtate during the ſummer: all winter, ploughing, treading the ground in wet weather, and poaching it, is, as it ought to be, entirely avoided.

Having thus gone through my four years courſe, it is hardly needful to obſerve, that it is calculated to keep the land clean, and to inſure one valuable crop in every year.

I have prepared an account of the expences, produce, and probable profit; but every eſtimate of that kind is too local for general information: ſuffice it, that with me the produce is twelve pounds, my expences ſix pounds, leaving ſix pounds per acre for rent, taxes, tithes, riſks, intereſt, and profit.

I am, SIR,

Your moſt obedient ſervant,

Weſt-barn Farm,
Merton.
Dec. 29, 1794.

JOHN MIDDLETON.

Mr. MORE.

IN conſequence of a letter written to Mr. Middleton, requeſting him to inform the Committee of Agriculture, What was the ſtate and value of the land he mentions, previous to his managing it in the manner he deſcribes? the following anſwer was received.

SIR,

THE land was occupied by a bad farmer, who held it under a leaſe which allowed him to take three crops of corn in ſucceſſion, and then to fallow; and was, as farms uſually are at the expiration of the leaſe, foul and exhauſted.

I am, SIR,

Your very humble ſervant,

JOHN MIDDLETON.

Paradiſe-row, Lambeth,
Feb. 16, 1795.

Mr. MORE.

The

The Thanks of the Society were given to RICHARD RAMSDEN BRAMLEY, Eſq. of Leeds, for the following Communication, relative to the CULTURE of LANDS in the Neighbourhood of Great Towns; and in conſequence of the expreſſion near the concluſion of his Letter, in which is mentioned, that a large Quantity of Land is likely to come into his hands, he was informed, that any future Communication will be highly acceptable to the Society.

SIR,

READING lately with attention the publication of the Patriotic Society of which you are Secretary, and thinking a mode of Farming uſed here not yet noted, I take the liberty of ſtating it as applicable in the ſame manner, near moſt towns where the meadow or paſture land is overrun with coarſe, ordinary graſſes; or is, in its form, or from neglect, rough and uneven: our

practice here, is, in ſuch caſes, to agree with a gardener for planting the land with potatoes.

The proceſs is, firſt paring, then to dug out a ſmall trench, in which the firſt row of ſets is placed, and then covered by a ſpade's-graft of earth; thus burying the ſurface in continuance, and on which the potatoes are planted with a dibble. The decaying ſods ſerve as a nutriment to the riſing crop, and keep the ſoil light. The gardeners plant the early, or ſecond early potatoes, as paying beſt for immediate uſe; and can afford to give from five to ſeven pounds per acre for the uſe of the land, at the ſame time engaging to keep the ſame well hoed, and to have the crop cleared off in Auguſt.

The ground ſhould then be completely cleaned by ploughing, harrowing, &c. and in the enſuing ſpring ſown with oats or barley; after which, the quantity of ſixteen buſhels of hay-ſeeds, and ten pounds of white clover ſeed, per acre, ſhould be ſown

and

and harrowed in. The crop of corn may be expected good, and nearly with a certainty, in consequence of the fine tilth of the land; the same expectation may be had of the grass-seeds, if they have been properly selected. The last year, when crops were not generally abundant, on less than one acre and three roods, I had eighteen quarters and two bushels of fine oats, and the promise of the grass such as to satisfy the most sanguine hopes; not a vacancy of six inches square, if one of three can be found on the whole field, and the crop likely to be from two to two and half tons per acre. As this mode is pursued, not for its paying much present profit, but its actual future improvement, and the embellishment of the ground, I remark an error which has occurred, by trying (immediately after the potatoes were off) to clean completely and lay down the field with seeds: near to a town where land lets dear and manure is easily attainable, the general custom is not to be sparing thereof; and

with the freſh dung ſo many of the ſeeds of weeds get introduced, as chickweed, fumitory, fat-hen, and perſicaria, that laid down (after potatoes) with graſs-ſeeds only, its groſſneſs forces up ſo large a quantity of thoſe weeds as to half ruin the firſt crop; which evil is in a great meaſure prevented by the practice of ſowing corn the ſucceeding ſpring, and with it the graſs-ſeeds: the corn thus keeping the weeds out of ſight, and preventing them from ripening their ſeeds, admits the regular graſſes to get ſo good root-hold as to prevent any future intruſion; and no manure ſhould be laid on till the graſs-ſeeds have nearly covered the ſurface, as then there is litle reaſon to fear the weeds ſuch manure might otherwiſe introduce. A ſpeculative farmer (myſelf), with my wheat laſt year, I laid down twenty-three acres with graſs-ſeeds, ſixteen buſhels to the acre, and in the month of April added ten pounds of white clover ſeed per acre; the ground was in fine condition, and the crop of wheat, which at one period promiſed

forty

forty to forty-five buſhels per acre, yielded, in conſequence of the ſeaſon, only about thirty-two buſhels per acre; but the ſward has the moſt promiſing appearance, and I think a preference to the graſs-ſeeds ſown with ſpring crops. Of courſe, where opportunity offers, it is a good mode to follow, and, as ſuch, worthy of recommendation. I had purpoſed giving an account of the management of about forty acres of new incloſure; but ſeeing, in the papers of this day, the Agricultural Society's recommendation of potatoes, I thought this mode of introducing that uſeful root might add an additional ſtimulus where it has never yet been practiſed. The paring and digging, which coſts here three pounds twelve ſhillings per acre, gives ſo decided an advantage in the crop by lightening the ſoil, that it is thought to pay the additional expence, and is an uſeful ſource of employment: the ground is afterwards fit for carrots, cabbages, or onions, if ſuch crops are wiſhed for, and any inequalities in the ground are by this means ſoon remedied.

It will give me pleaſure to learn that theſe thoughts may be deemed uſeful; and it is probable that ſome future experiments to be made on a purchaſe of three thouſand five hundred acres (which will ſoon come into my power) may be worthy of communication. Should they prove advantageous, I ſhall be happy in giving an account; and am, with beſt wiſhes for the Society's ſucceſs,

SIR,

Your moſt obedient ſervant,

RICHARD RAMSDEN BRAMLEY.

Leeds,
Feb. 9. 1795.

Mr. MORE.

The

The Thanks of the Society were given to Mr. JOHN LOCKETT, of Donnington, near Newbury, for his Communication, relative to a Method of increasing POTATOES, as described in the following Paper.

SIR,

HAVING lately seen in the news-papers various methods proposed in order to increase and multiply Potatoes in the most effectual manner, I take the liberty of sending you an experiment which I have repeatedly made; also a method to procure Plants in a very cheap and easy way; not after such as the present winter, but after a mild winter, when the frost has penetrated but a small distance below the surface of the ground.

First, as to the experiment; I took three potatoes, the 17th of December,

1793,

1793, and put them in a ſmall caſk, and placed the caſk in a cellar: the 10th of March, I took off fifteen ſhoots from them, and planted them with a ſetting or dibbling ſtick, in the ſame manner as cabbage plants, about one foot ſquare: the 16th of April, I took twenty-one more ſhoots from the ſame three potatoes, and planted them as before: on the 22d of May, I took twenty-five ſhoots more, and planted them alſo, and then waſhed and boiled the ſaid three potatoes, which proved very good to eat. I had, from the ſaid ſixty-one ſhoots, as many potatoes as weighed ninety-two pounds, notwithſtanding the rooks did me much damage.

My method of procuring plants after a mild winter, is to go (about the month of May) over the fields where potatoes were planted the preceding year, and pull up from among the corn all the ſhoots produced by the potatoes left in the ground the preceding autumn which had eſcaped the digger; and

plant

plant these shoots in the same manner as above, viz. the same as cabbage plants.

I am, SIR,

Your very humble servant,

JOHN LOCKETT.

Donnington,
March 1, 1795.

Mr. MORE.

The

The Thanks of the Society were this Seſſion given to Mr. WILLIAM RANDALL, the Author of the following Paper, reſpecting the FORMING OAKS into COMPASS SHAPES, for the Uſe of Ship-Builders: and the Society, in conſideration of the great advantages that may reſult from having Oaks trained in that manner, have offered Premiums for growing Oaks in Compaſs forms, for the Uſe of Ship-Builders. See Claſs XVII.

SIR,

I MUST firſt beg the Society's pardon for offering to them any agricultural theory; but the following remarks being ſo connected with general obſervations, I cannot (as I could wiſh) confine them to practice only.

From the ſcarcity and very high value of Compaſs-ſhape Timbers, the enormous waſte in his Majeſty's yards, as well as loſs of time in cutting them out from large trees, when not to be had of a natural growth, ex-

excluſive of the delays occaſioned by the want of trees fit for that purpoſe, I have been led to conſider that the ſhapes might be ſo altered in the infant growth of the tree, as to ſuit the different purpoſes. From the ineſtimable value of the object, and the extreme length of time which muſt elapſe before the full advantages of theſe improvements can be obtained, I was induced to make ſome trials, to prove what was likely to be effected.

By the figures annexed *(ſee the cut)*, and from ſtrict obſervations on effects inadvertently produced from ſomewhat ſimilar cauſes, I have concluded that the deſign might be accompliſhed; and have taken the liberty of ſubmitting this paper to the ſuperior judgment of the Society, by whom more perfect plans may be formed; and, if it meets their approbation, may be conveyed, through their extenſive channel of information, to the country at large. Humbly preſuming on the candour of the Society, to excuſe thoſe imperfections which

from

from inexperience in literary communications may herein appear, I beg leave to ſubſcribe myſelf,

Your moſt obedient humble ſervant,

WILLIAM RANDALL.

Maidſtone,
January 21, 1795.

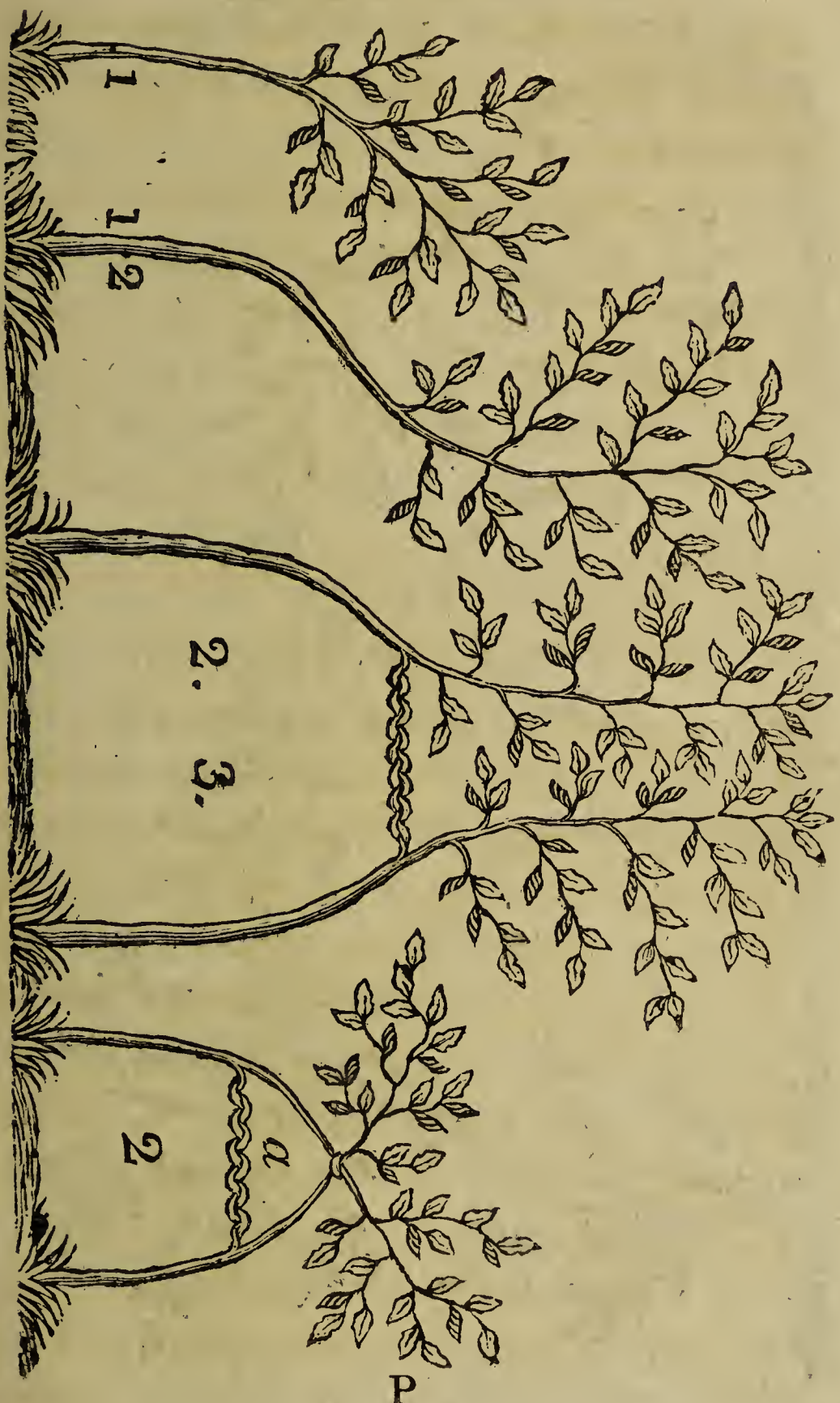
Mr. MORE.

RULES for training OAK TREES to Compaſs Shapes, for Naval Purpoſes.

IT may not be improper to remark, that moſt of the numerous families of timber-trees produce their leaves and ſide-ſhoots alternately or in pairs: in the firſt claſs is the oak, whoſe leading ſhoot frequently takes a reclining direction; yet in proceſs of time, if it meet with no obſtructions, it becomes erect: thoſe producing leaves and laterals in pairs, as the aſh, maple, &c. ſeldom alter the poſition they firſt take.

It is found materially neceſſary, in the common practice of raiſing trees, to keep

CUT, No. 1, of Mr. RANDALL's Method of TRAINING OAKS.



Cut, No. 2, of Mr. Randall's Method of Training Oaks.

them upright, to leave all the lateral ſhoots entire, or cut to what are in the nurſery trade termed ſpurs, from ſome diſtance below the head, eſpecially on all alternate-leaf trees; for when, by eagerneſs to accelerate the height of thoſe trees, unſkilful perſons cut cloſe all the ſide-ſhoots, it generally happens, from the luxuriant growth of the leader, and the weight of its full-extended foliage, a bend in the ſtem is brought on, which every future ſhoot aſſiſts to increaſe, until a regular head is formed; which done, the leader will aſſume an upright direction, and frequently returns to be perpendicular over the root.

Theſe obſervations are, no doubt, well known to the Society, and to all other perſons acquainted with the growth of trees; yet, from every practical rule and impartial ſurvey of effects inadvertently produced from ſimilar cauſes, it will be found fully applicable to the preſent caſe; namely, to reverſe the methods uſed to obtain ſtrait-ſtemmed trees, by taking off twice every year, in March and June, all the laterals

close to the ſtem; beginning, when about eight feet high, and continue till twenty or more feet. This will cauſe the Oak-trees on which it is practiſed to nearly reſemble the form No. 1 (ſee the cut); after which time, if left to nature, the ſtem will in its regular courſe aſſume, in an advanced age, a form ſomewhat like that marked No. 1, 2. This part of the plan might be well adapted to parks, hedge-rows, and open plantations.

The next part may be extended to woods, and where underwood is regularly cut every fifteen or twenty years; in many of which are numbers of clean young oaks. Wherever two kindly trees happen to grow ſo near as to be brought (by pulling down the heads with a ſtick having a hook at one end) to reach each other, a ſtrong branch from towards the top may be gently twiſted (ſo as not to deſtroy its growing faculties), and joined together by a wove, which keeps the ſtems in the poſition ſhewn, and reſembles the form No. 2. It is, by referring to common cauſes, to be con-

concluded that each leader will purſue an upright courſe, which will cauſe the future appearance to reſemble No. 2, 3.

In either of the above-mentioned ſituations, where there are ſingle trees that cannot be brought to join with others of the ſame kind, and the firſt plan not approved of, any ſpecies of wood might anſwer the purpoſe, by cutting it of the height required, and bringing the branch from the Oak down to it, then faſtening it by a nooſe eaſily made by twiſting the branch as before: in default of a neighbour grower, a ſtrong ſtake with a hooked end would endure three or four years, and anſwer the purpoſe of confining the tree (ſee No. 3): its future growth will be likely to incline upward, and in time to form a ſhape nearly as No. 3, 4. None of theſe proceſſes are expenſive: the two laſt plans, I find, can be done in ten minutes each tree: it can be only a trifling obſtruction to the growth. Its ſuperior advantages will be found in woods, where, at the following fall or any future period, thoſe that fail to form

ſo deſirable a ſhape as in the opinion of a judicious wood-reef is neceſſary, may be taken down, with little difference in their value, had they been left to a natural courſe.

From the age of eight to fourteen years, if free growers, or about the ſame number of feet in height, I find is the moſt convenient time to fix them, according to the different deſigns. The ſpring before the leaf comes out, I alſo find the beſt ſeaſon for twiſting the branches, or any reduction of them.

It would, I preſume, be needleſs to point out which are the moſt valuable bends in Oak timber, as alſo to refer to atteſtations of the natural trees reſembling the forms which are in the cut annexed, and intended only to convey the ideas of the deſign. The concluſions drawn impartially from natural products, I judged eſſentially neceſſary to take a full view of the effects; which ſmall deviation from the Society's rules of admitting practicable communications only, will, I truſt, be excuſed, from the particular circumſtances of the caſe.

PAPER

IN

CHEMISTRY.

CHEMISTRY.

IT has long been the ardent wiſh of every humane mind to alleviate, if poſſible, the evils which ariſe to the induſtrious Labourers in thoſe manufactures where the health of the Workmen is liable to be injured by the nature of their employment: among theſe ſtands foremoſt, the making WHITE LEAD; and the horrible complaints to which the workmen are ſubject in that manufacture, and which principally ariſe from the duſt of the corroded lead, will be in a great degree prevented by the practiſing a method deſcribed in the following Paper. The Society, fully ſatisfied of its utility, have this Seſſion voted their GOLD MEDAL to Mr. WARD, the inventor, for his ingenuous communication of it to the Public; and a complete Model is reſerved in the Society's Repoſitory.

SIR,

SIR,

OBSERVING that, among the various Premiums offered by the Society for the Encouragement of Arts, Manufactures, and Commerce, one is mentioned for diſcovering a method of preparing White Lead that ſhall not be prejudicial; I take the liberty to ſend you a drawing of my invention, to prevent the ill effects to the working people in preparing White Lead.

In order to explain, as well as I can, the advantage that will accrue to the workmen in adopting my invention, in preference to the common mode of preparing White Lead, I will firſt ſtate what the common mode is. When blue lead is in part corroded in the ſtacks, by an acid raiſed by a conſiderable degree of heat, brought on by horſe-litter, the corroded and uncorroded lead are taken from the ſtacks to a room called the engine-loft, where a pair of iron rollers is fixed with a ſcreen under them: the

the lead in this ſtate is paſſed through the rollers and ſcreen; from the motion of theſe rollers and ſcreen, by which the White Lead is ſeparated from the uncorroded or blue lead, together with the moving the lead in order to its being paſſed through them, a very conſiderable quantity of fine duſty white lead is raiſed, which almoſt covers the workmen thus employed, and is very pernicious to them. And not only in this part of the proceſs are they liable to be thus injured; but they are again expoſed to the duſty lead, by removing the blue lead from the ſcreen-houſe to the furnace, as there ſtill remains a quantity of the fine particles of White Lead, which of courſe riſes in the removing it; and in removing the White Lead alſo from under the ſcreen to the grinding-tub, a quantity of the duſt ariſes, which is very detrimental to the people ſo employed.

My invention removes all theſe difficulties reſpecting the dry duſty white lead, ſo very injurious to the health of the working

people; and conſiſts of a veſſel, as ſhewn in Plate No. 2, twelve feet long, ſix feet wide, and three feet ten inches deep. In this veſſel is fixed a pair of braſs rollers in a frame, one roller above the other: the centre of the rollers is about ten inches below the top of the veſſel; and one inch lower, is a covering of oak boards or riddles, an inch thick, fixed in the inſide of the veſſel in a groove, ſo as to be taken out occaſionally: theſe boards are bored with a centre-bit as full of holes as may be, without danger of breaking into each other; the ſize of theſe holes is, in the machine at large, about five eighths of an inch diameter. This being done, the veſſel is filled with water about three inches above the oak boards or riddles; the lower braſs roller is now under water, and about half of the upper roller is under water alſo: thus the lead coming from the ſtacks is put through the braſs rollers in water, and by raking the lead with a copper rake over the

oak

oak boards or riddles, the white lead paſſes through the riddles, and the blue lead remains above; which being taken out, is thrown upon an inclined plane of ſtrong laths to drain; where it remains about twelve hours, when the blue lead is ready for the furnace to be remelted: by this means no duſty white lead can riſe in any part to the work people. No ſuch plan as this (although long deſired) has, to my knowledge, been put in execution, ſo as to anſwer all the purpoſes above ſtated. It may be aſked, why the lead in the common mode is not made wet before it is paſſed through the rollers and ſcreens? Should this be done, the lead would be a paſte on the rollers and ſcreen, and the white lead prevented ſeparating from the blue lead, which is abſolutely neceſſary in the preparation of white lead.

Should this invention meet the approbation of the Society, I ſhall feel myſelf happy in having contributed to the relief of the

the working people employed in the manufacturing of White Lead.

I am, SIR,

Your very humble ſervant,

ARCHER WARD.

Derby White-Lead Works.
Jan. 2, 1795.

Mr. MORE.

Three Samples accompany this.

No. 1. contains a ſample of White Lead, as firſt taken from the ſtack.

No. 2. contains a ſample of White-Lead duſt, after it has paſſed through the braſs rollers, and ſeparated from the blue lead.

No. 3. contains a ſample of White Lead completely manufactured.

Theſe ſeveral ſamples are reſerved in the Society's collection for the uſe of the Public.

I DO hereby certify that the White Lead made at the manufactory at Iſlington, belonging to Walker, Ward, and Co. is, and has been for ſome time paſt, manufactured in the manner as ſtated by Mr. Ward, in his letter, addreſſed to Mr. More, and that many tons have been manufactured; and that, ſince Mr. Ward's plan was adopted, no other method has been uſed.

Witneſs my hand, this 19th day of January, 1795,

SAMUEL WALKER PARKER.

I HAVE had the pleaſure of examining the foregoing invention, and think it a very valuable improvement on the general mode of preparing White Lead: I am very ſure it muſt be the means of preſerving the health of the operator in that branch, and of courſe an acquiſition to a great number of

of manufacturers. The quality of the lead is not in the leaſt injured by it; and a ſample has been ſhewn to me, equal to the beſt white lead I ever ſaw.

H. BROWNE.

Irongate, Derby.
Jan. 2, 1795.

Fig. 1.

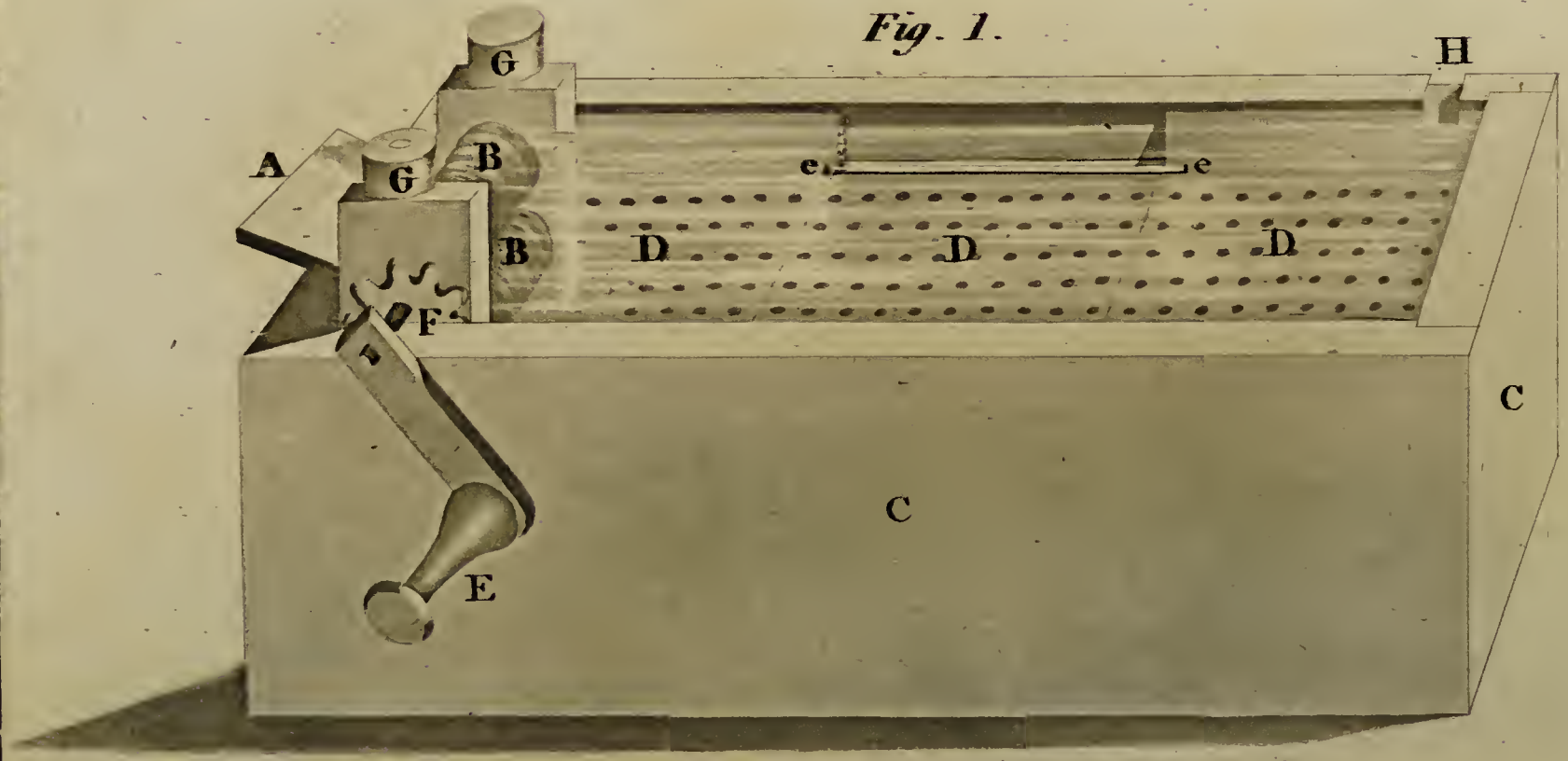


Fig. 2.

Explanation of the PLATE *of the* MODEL *of Mr.* ARCHER WARD'S MACHINE *for preventing the ill Effects to the Workmen from the Duſt ariſing in the manufacturing* WHITE LEAD.

Fig. 1. A. An inclined plane of wood on which the White and Blue Lead is placed immediately from the ſtacks, and thus introduced between the braſs rollers B. B.

C. C. The veſſel containing water.

D. D. D. The pierced oak boards or riddles, which, by being made to ſlide in grooves in the ſides of the veſſel C. C, may occaſionally be taken out by removing the wooden bar, *e. e.*

E. A handle or winch, which, in the machine at large, may be a wheel communicating to the mill-work, and thus turning the rollers, B. B.

F. A pinion fixed on the gudgeon of the upper roller, and communicating with a ſimilar pinion on the arbor of the lower

roller, keeping both of them in motion by the turn of the handle: as it is neceſſary that the upper roller ſhould be at liberty to riſe or fall, in order to give a due degree of preſſure to the lead in paſſing between the rollers, two weights, G.G. with proper ſtems to them, (as ſhewn more at large, fig. 2.) are placed over the gudgeons of the upper roller, thereby keeping a due degree of preſſure; and if any piece of the lead ſhould be thicker than uſual, admiting the roller to give way to it, and thereby preventing any injury to the machinery.

H. A notch in one ſide of the wooden veſſel, ſerving to regulate the depth of the water on the riddles, D. D. D.

PAPER

PAPER

IN

MANUFACTURES.

MANUFACTURES.

A Bounty of FIFTEEN GUINEAS was this Seſſion voted to Mr. JOHN ANTIS, of Fulneck, near Leeds, for his further improvment of the COMMON SPINNING-WHEEL (ſee Volume XI. page 152, where a Plate of his former Wheel is given): and for the uſe and information of the Public, a complete Wheel, according to the laſt improvment, is reſerved in the Society's Repoſitory.

The following is an Abſtract of a Letter from Mr. Antis, on this ſubject, dated Fulneck, May 25, 1795.

SIR,

I WILL now, according to your deſire, explain myſelf, as well as I can, upon the ſubject of my laſt improvement of the

common Spinning-wheel. After having made my former improvement of a ſliding bobbin, I completed a Wheel on that principle: this gave me an opportunity to obſerve, how the firſt invention, and in ſhort, how the whole Wheel, acted; and induced me to make the following obſervations on thoſe parts, which I thought would admit of ſtill further improvement.

1ſt. Beſides the diſagreeable catch which the pinion with one leaf gave at every revolution of the Wheel, the bobbin moved only by ſudden jerks, and did not lay the thread on it ſo even as might be wiſhed: to remedy this, I adopted the motion of an endleſs ſcrew, working a toothed wheel with a heart-ſhaped piece of braſs fixed thereon.

2dly. As the ſpinner muſt be always perfectly at liberty to hold the thread at pleaſure, and not to let it in until it is ſufficiently twiſted, I obſerved, that as the bobbin moved upon a ſquare, the holding of the thread ſo affected it, that

parti-

particularly when the bobbin began to be filled, and conſequently the purchaſe further from the centre, it became quite ſtiff upon the ſquare, and incapable of moving, notwithſtanding the action of the weight; and afterwards, when the thread was left at liberty, it would jump at once half an inch or more: and this would invariably have been the caſe with every other contrivance of the kind which might be ſubſtituted; as for inſtance, a cylinder with a rib, &c. &c. except the weight had been much heavier, which would have occaſioned a greater friction on the machine.

3dly. Beſides what has been obſerved above, it is well known, that in all wheels upon the old plan, as well as in thoſe with my firſt improvement, there was no other way to increaſe the friction of the bobbin, and make it take in more or leſs in proportion to the quantity of thread thereon, than by ſtretching or tightening the double cord; and this could never be

done but at the expence of making the wheel go heavier and heavier, ſo that it became quite troubleſome when the bobbin was nearly filled. The ſame effect followed in ſome wheels that I have ſeen, which were made with a ſingle cord, having another added, to occaſion a preſſure on the neck of the bobbin, whereby the friction was increaſed or diminiſhed; becauſe the ſame degree of preſſure it made upon the bobbin, was alſo made upon the ſpindle, or upon a ſtud on which the bobbin turned, as in the ladies common ſpinning-wheels. As this latter method could not be uſed with a ſliding bobbin, I was under the neceſſity of contriving a new mode, by which the one was made quite independent of the other, ſo that the bobbin might move too and fro with the greateſt freedom, and there might be a means of increaſing the friction without any effect on the velocity of the whole machine. After various trials, I hit upon the

the preſent plan, viz. to make uſe of a ſingle cord, which has only to turn the flyer, therefore needs no ſcrew to tighten it; for, ſhould it, even in time, become ſo ſlack as not to do its duty, it may eaſily be tied or ſtitched a little ſhorter.

In order to regulate the friction on the bobbin, there is a neck of braſs or ſteel faſtened to one end of it, of which a vice or pincher fixed to the ſliding-bar takes hold: this vice muſt be made either of two elaſtic ſprings with wooden tops, or of wood wholly, and boſhed with leather; but if of wood only, then a ſpring muſt be made under the ſhoulder of the ſcrew to anſwer the ſame purpoſe. By tightening this ſcrew more or leſs, the friction may be regulated to the greateſt nicety, provided the ſprings are of a ſtrength rightly proportioned to their functions. It will readily appear that all this may be done without the leaſt effect on the velocity of the whole machine, as thereby nothing is added to

the

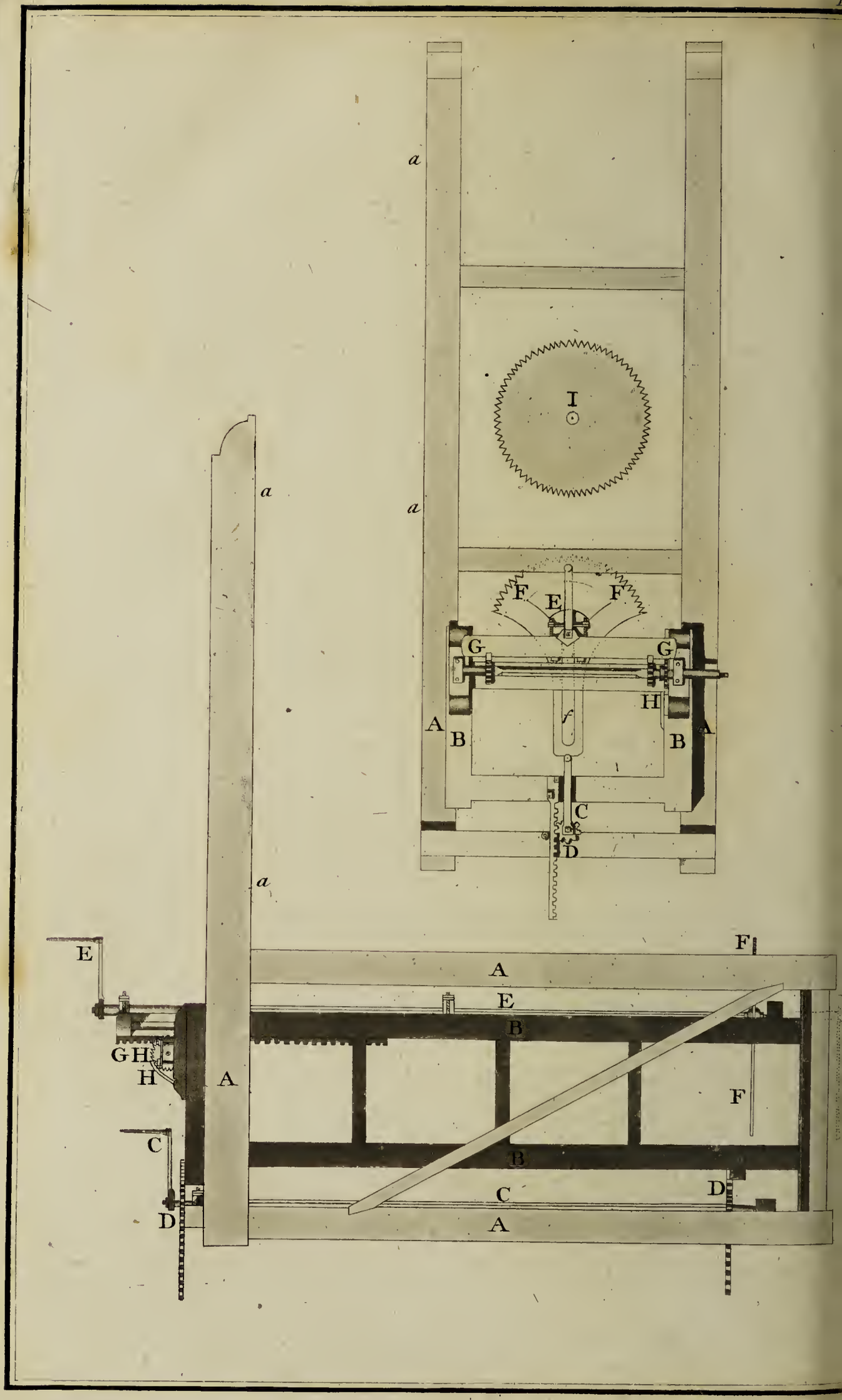
the general friction ſo as to obſtruct it: ſuch a wheel will therefore be found to run much more freely than one with a double cord; and this muſt be conſidered a great advantage to a ſpinner who is obliged to ſpin the whole day for her living.

Theſe are the chief advantages aimed at by the preſent invention; and all who have ſeen and tried it here, think it as great an improvement on my former Wheel, as that was upon the common Spinning-wheel.

PAPERS

IN

MECHANICKS.



Mr. Foulds's Machine for cutting Piles under Water.

MECHANICKS.

The GOLD MEDAL was this Seſſion voted to Mr. JOHN FOULDS, Engineer to the London-Bridge Water-Works, for his ingenious Contrivance of a MACHINE FOR CUTTING OFF PILES UNDER WATER; of which a complete Model and Drawing are reſerved in the Society's Collection, and a Plate is annexed.

Deſcription of the Plate of the Model of Mr. JOHN FOULDS's *Machine for cutting off Piles under Water.*

A. A. THE external frame, which is framed at right angles: and when the frame *a. a.* is laid level, the piles are cut off perfectly ſo, or in any other direction in which it is placed.

B. B. Internal frame.

C. C. Upright ſpindle and handle, which, with the racks and pinions

D. D, advance or recede the internal frame.

E. E. Up-

E. E. Upright ſpindle and handle fixed to the internal frame, by which the ſaw F. F. is worked. In a piece of iron, fixed behind the ſaw, is a mortiſe, *f*. by which the ſaw is admitted to advance upon its centre, as the work goes on; and thus the piles may be cut in any direction required. The ſaw is held faſt or looſened by a ſcrew underneath.

G. G. Vertical racks, worked by an horizontal ſpindle with pinions, by which the internal frame and ſaw is raiſed and lowered, to cut off Piles at various heights.

H. H. A wheel with pall, to ſupport the frame at any determined height.

I. A circular ſaw, to be uſed occaſionally.

Fig. 1.

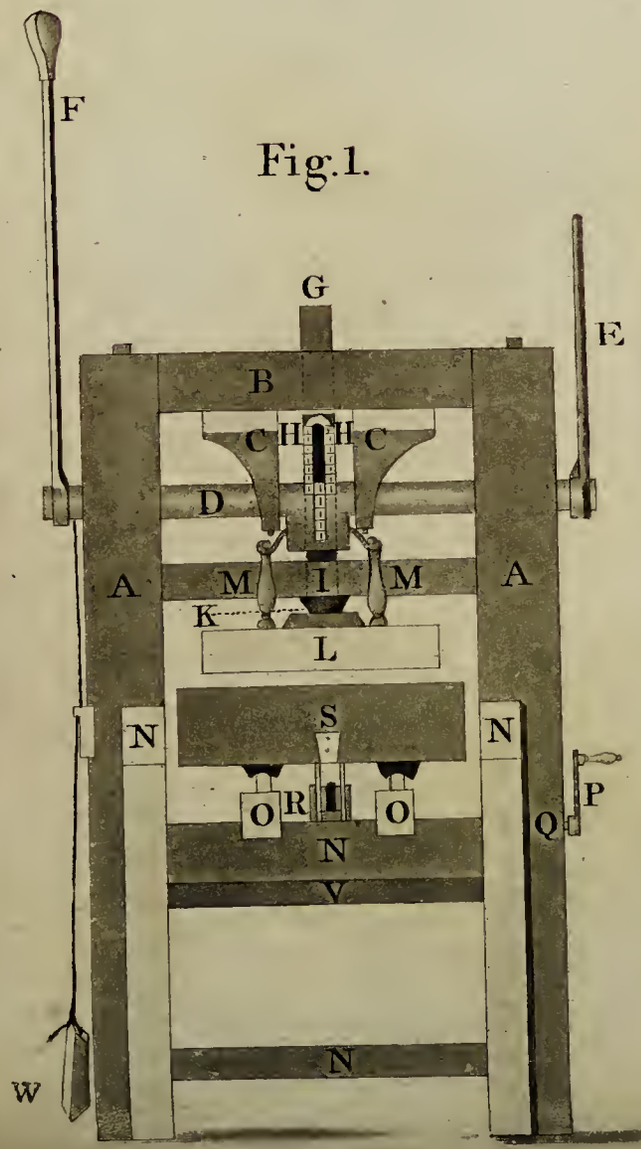


Fig. 2.

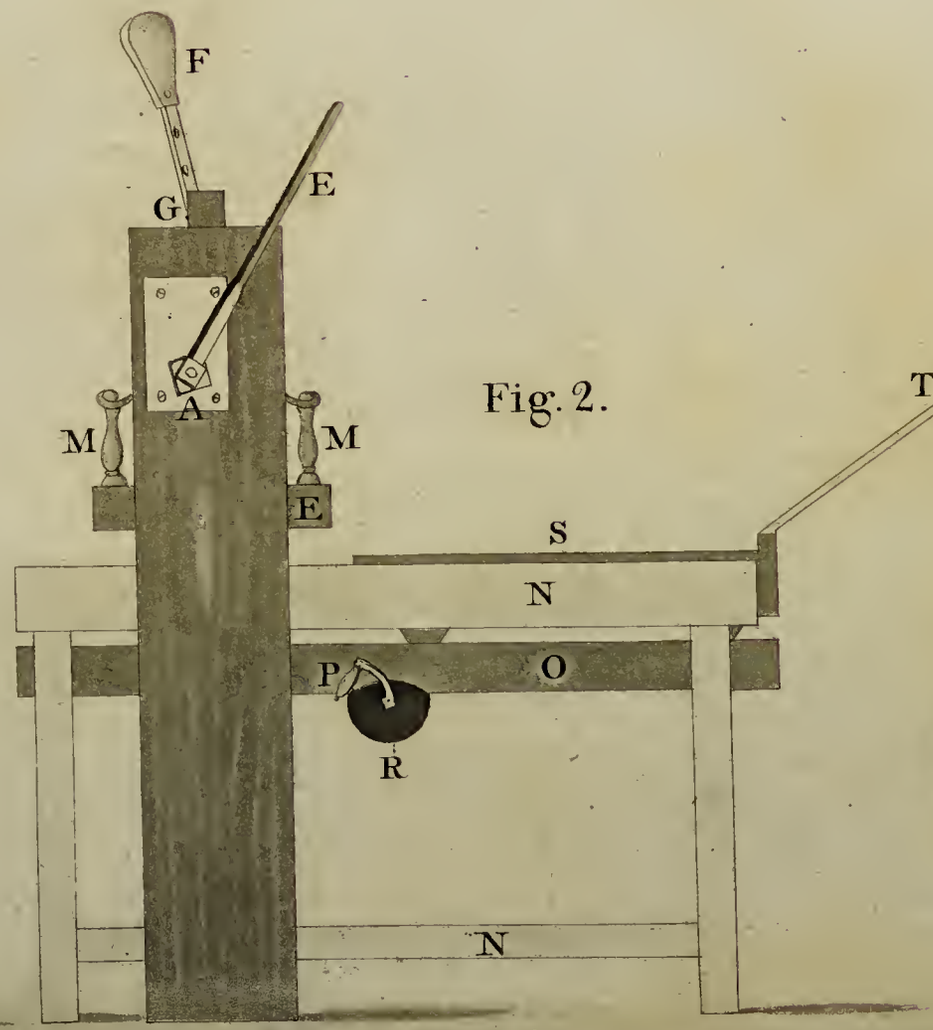
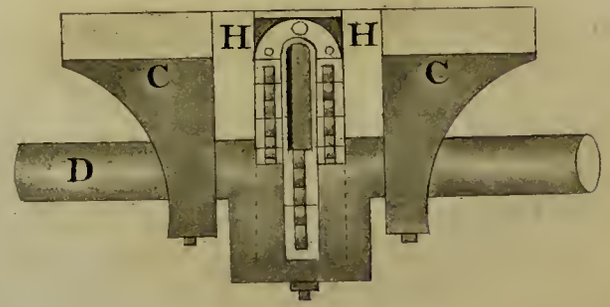


Fig. 3.



FORTY GUINEAS were this Seſſion voted to Mr. JOSEPH RIDLEY, for his Improvement of the PRINTING-PRESS, as deſcribed in the following Paper, and ſhewn in the Plate annexed; and of which a complete working Model is reſerved in the Society's Repoſitory, for the inſpection and uſe of the Public.

Explanation of Mr. JOSEPH RIDLEY's *Printing-Preſs, of which a Front and Side View are ſhewn,* Fig. 1 and 2, Plate 4.

THE Head of the Preſs is the chief object of this improvement, from which the ſcrew hitherto in general uſe is taken away, and a perpendicular bar of ſteel, with a conical end, lodged in a cup on the platen, ſubſtituted in its ſtead. The purchaſe is obtained by means of a ſpindle paſſing through each ſide of the Preſs, near the bar, to which it is attached by three chains; the two outer ones ſerving to pull

down the bar and platen, and the middle one to raiſe or recover them again. To one end of this ſpindle a lever or handle, about two feet long, is fixed, which, by means of the two chains, pulls down the platen with any force required: at the other end of the ſpindle is alſo another lever, with a weight acting as a fly, which weight may be fixed by means of holes in the lever, at ſuch diſtance from the centre as may be judged neceſſary, according to the work to be done.

Deſcription of the Plate.

A. A. Two ſtrong perpendicular cheeks joined together by three croſs pieces.

B. The upper croſs piece, or head-piece, ſuſtains the preſſure by the two ſtays C.C. being firmly ſcrewed to the head-piece, and having at the ends two ſlit collars to receive the ſpindle D. which is governed by the lever or handle, E. two feet long, and by which the purchaſe is obtained, and may be aſſiſted, if required, by

the other lever, F, with a moveable weight on the other ſide of the Preſs: this weight only becomes uſeful when power and diſpatch are the leading objects. A weight of lead, W, hangs by a cord over a pulley fixed on the axis at the bottom of the lever, F, ſerving to aſſiſt the return of the lever when the platen riſes. The ſpindle D is made broader in the middle than at the ends: the ſpindle and the upright bar, G, are connected by three chains, H H, two of which afford the pull, and the other reinſtates the bar and platen: of theſe chains one is bolted by one end to the lower part of the bar, ſo as to admit the other two, one on each ſide, the lengthwiſe of the bar; and the other end of the chain is brought over the middle of the broad part of the ſpindle, and ſcrewed through the bottom, ſo as to afford an opportunity of adjuſting the chain. The two outer chains being, by means of a ſwivel, extended wide enough to admit the centre one between

them, a ſtrong bolt muſt paſs through the middle of the ſwivel, and the upper part of the bar; and being ſtayed faſt on the back of the bar by a nut or forelock, the other two ends of the chains muſt be brought under the broad part of the ſpindle, one on each ſide the ſingle chain, and ſcrewed to the bottom, as before mentioned. A notch is made in the middle of the ſpindle, in order to receive the three chains, and thereby obtain a great purchaſe. The upper part of the bar, G, is incloſed, and worked in a collar in the middle of the head-piece B: the middle of the bar paſſes by the ſpindle, to which it is coupled by the aforeſaid chains; and the lower end is conveyed through another collar fixed in the middle of the ſhelf, I: the cone at the lower extremity is lodged in a ſteel cup, K, ſcrewed on the middle of the platen; the platen is ſuſpended by four ſprings, branching out from the bar, above the ſhelf, I, with a hole at each

each of their ends, in order to receive the tops of the four pillars, M M. on which male ſcrews are cut: the baſes of theſe pillars are fixed on the platen near the four corners. By nuts properly applied to the ſcrews above the ſprings, the workmen are enabled to adjuſt the platen, ſo that it comes down parallel to the ſtone, and form of letters laid thereon. N N N. the body or frame of the Preſs. V. the lower croſs-piece or main brace, which acts againſt the head, between which are the ribs, O O. The coffin, S. and the form of letters; and upon that the paper, tympans, &c. and friſket, T. U.

The ribs, O O, lie acroſs the main brace, V, and extend beyond the two ends of the frame, to which they are ſtrongly ſcrewed: two long bars of iron, faſtened to the ribs, bear on them the coffin, to the bottom of which ſix pieces of hollow iron are firmly fixed, well fitted and ground ſmooth, in order to procure an

eaſy traverſe, by a gentle motion of the rounce, P, fixed on the end of the ſpit, Q, on which is put a double pulley, R, with two ſtraps made faſt thereto, each at one end; the other ends of the ſtraps are attached one to each end of the coffin, S, to convey it with accuracy to the deſired place*. In the coffin is placed a poliſhed ſtone, forming a flat ſurface with the verge of the coffin; it has likewiſe joined to it, by means of two hinges, the tympan, T, which, in performing the work of printing, is, as uſual, firſt underlaid with parchment, on that two flannels are laid, over them the upper tympan, with a parchment, as before; then U, a thin frame of iron, the ſize of the tympans, called the friſket, on which is paſted a ſheet of paper, cut out in the form of the pages impoſed, in order to keep the ſheet in printing clean, and in its proper place.

* No work with this Preſs requires more than one pull.

In

In order that the ſtays, C C, the ſpindle, D D, and the chains, H H, with part of the bar, may be more diſtinctly ſeen, they are ſhewn on a larger ſcale, at Fig. 3.

THIRTY GUINEAS were this Seſſion voted to Mr. WILLIAM BOWLER for his Invention of a CHURN, as ſhewn in the Plate annexed, No. 5: and the Churn is reſerved in the Society's Repoſitory, for the uſe of the Public.

SIR,

THE bearer, William Bowler, I beg leave to recommend to your notice: he has invented a Churn, which, upon trial, is much ſuperior to any of the Churns that I know are now in uſe. My ſervant has been, for the two laſt times of churning, with the barrel-churn ten or twelve hours: I have known farmers who have been two days before they have got butter; and upon a fair trial, with this new-invented Churn, it produced good butter within the hour.

I am, SIR,

Your moſt obedient ſervant,

Waltham Abbey,
January 13, 1795.

JAMES BERWICK.

Mr. MORE.

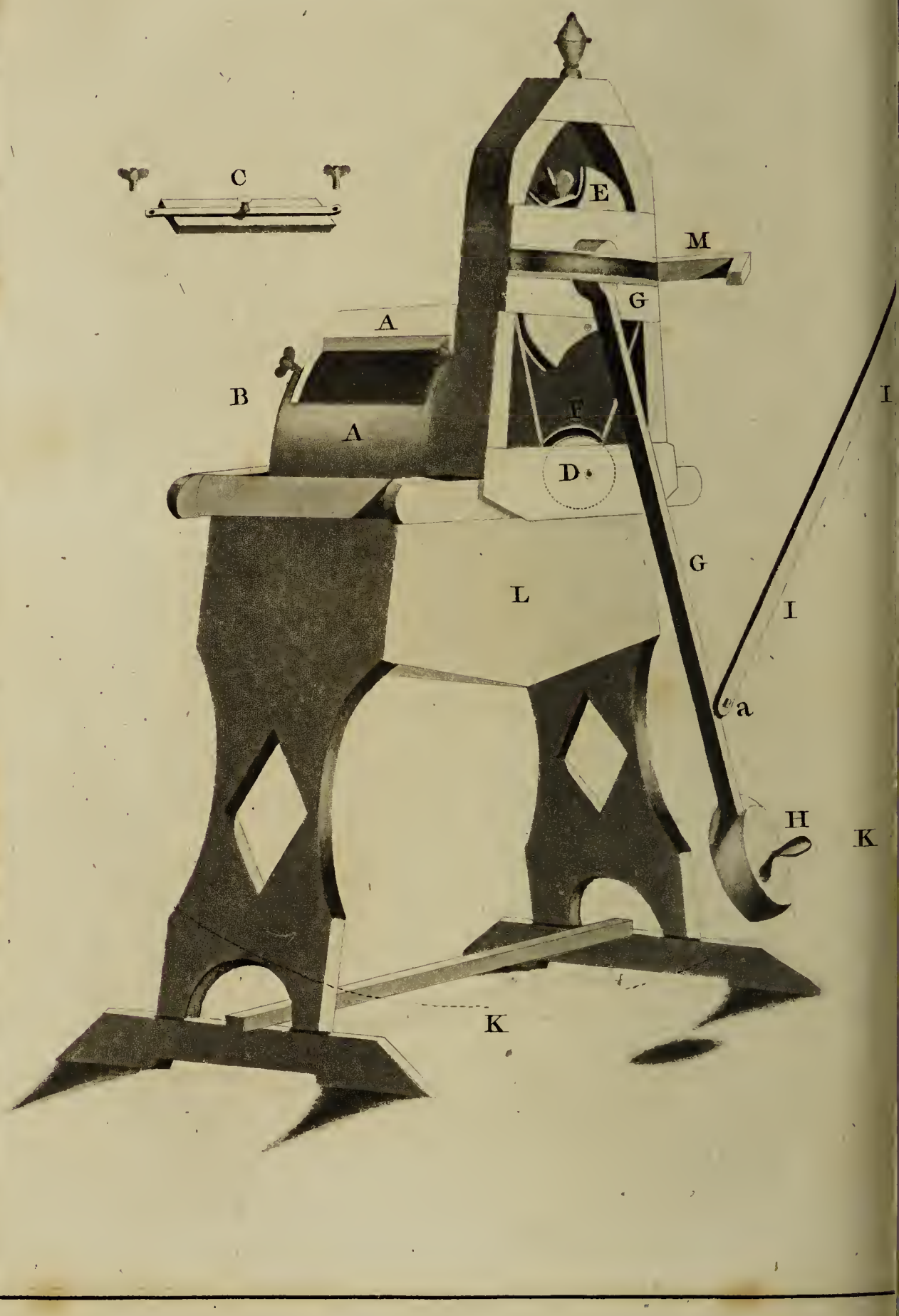
Ex-

Explanation of Mr. WILLIAM BOWLER'S *improved Churn.*

THE Churn itſelf is of the barrel-kind, being a cylinder, eighteen inches diameter, and nine inches wide, the ſides wood, and the rim tin-plate, having two openings; the one, eight inches and a half long, by four inches wide, through which the cream is put into the Churn, and the hand introduced for cleaning it; the other, a ſhort pipe, one inch diameter, by which the butter-milk runs out of the Churn when the operation is finiſhed. The firſt of theſe openings has a wooden cover, faſtened down by two ſcrews, and the other a cork fitted to it, while the butter is churning. There is alſo, near the larger opening, a ſmall vent-hole with a peg, to allow a paſſage for any air diſcharged from the cream at the beginning of the operation. An axle paſſes through the Churn, terminating in two gudgeons on which it hangs, its lower part being immerſed in a trough,

to occaſionally hold hot or cold water according to the ſeaſon of the year; and on the inſide of the rim are four projecting pieces of wood, with holes in them, ſerving to beat the cream by the motion of the Churn: this motion is cauſed by a pendulum, three feet ſix inches long, having an iron bob, weighing ten pounds, and at its upper end turning a pulley, ten inches diameter, from which goes a rope twice round another pully, about three inches diameter, fixed on the axis of the Churn, and cauſing it to make a partial revolution by each vibration of the pendulum. There are ſliding covers to the machinery, and alſo a cover to the water-trough, in order, when the hot water is uſed, to ſecure the ſteam, and keep the cream in a due and neceſſary degree of warmth. The motion of the pendulum is given and kept up by a wooden rod, about three feet nine inches long, turning on a pin about three inches above the bob of the pendulum.

Deſ-



Mr. Will.m Bowler's improved Churn 2.

Deſcription of the Plate of Mr. WILLIAM BOWLER'*s improved* CHURN.

A. A. The body of the Churn.

B. An opening, by which the cream is put in.

C. The cover of the large opening. The ſmall hole on the oppoſite ſide of the Churn cannot be ſhewn in the print.

D. The gudgeon on which the body of the Churn hangs.

E. The upper or larger pulley.

F. The ſmaller pulley fixed on the axis or gudgeon of the Churn.

G. G. The rod of the pendulum hanging from the upper pulley, E.

H. The bob of the pendulum.

I. I. The handle, moveable on a pin at *a*, by which the pendulum is moved to and fro, making a traverſe, in form of the dotted line, K. K.

L. The trough for the hot or cold water.

M. A projecting piece of wood, with a ſhoulder, by which the handle I. is ſupported when the churn is not at work.

A Bounty of TWENTY GUINEAS was this Seſſion voted to Mr. JOSEPH KNEEBONE, for his invention of a DRAG to prevent the Accidents which ſo frequently happen to Horſes drawing loaded Carts down ſteep Hills. Of this Contrivance a Wood-cut and Deſcription are given.

SIR,

FROM the great advantages which the Public have derived from the Society for the Encouragement of Arts, Manufactures, and Commerce, it behoves every individual to contribute towards the further progreſs of thoſe improvements which have in a great meaſure been laid open by the liberal donations of this Society.

Permit me then, Sir, to preſent you a model of a ſimple contrivance, invented for

the ſafe and effectual ſtopping of carts, or any two-wheeled carriages, in deſcending ſteep hills, ſo as to take off the great burden from the back of the ſhaft-horſe, and to permit the carriage to deſcend with the greateſt eaſe and ſafety, and which it will do in the moſt mountainous country, with as much eaſe as on a plain. This ſimple and uſeful contrivance, called here a Dog, or Wheel-drag, was invented by Joſeph Kneebone, a poor cordwainer, of this place, who, being obliged for ſome time to undertake the buſineſs of a carter, was frequently diſtreſſed in deſcending ſteep hills; and, after a variety of contrivances, he was at laſt ſo fortunate as to complete the machine here deſcribed, which on every occaſion has never failed to anſwer the deſired purpoſe. I have ſeen it tried, in a variety of inſtances; and within theſe ſix months its uſe has become general, particularly among farmers, where nothing but real and ſtriking advantages

can

can induce them to a change of cuſtom, and which, I preſume, is a mark of its great utility.

This contrivance may be applied to any kind of roads, and is not ſubject to the inconvenience of locking-poles, which on rough roads, or deep ruts, are very apt to overturn carts by the ſudden reſiſtance they meet with.

Should the Society think this invention worthy their attention and patronage, the inventor, who is a poor man, with a large family, will be much obliged for any reward which they may think proper to confer on him: and I ſhall feel myſelf very happy in having an opportunity of preſerving and preſenting to the Public, a contrivance ſo admirably calculated to remove the danger and inconveniency of loaded carts in deſcending ſteep hills.

In order to make the deſcription of this Wheel-drag more intelligible, I have ſent you a model, made of mahogany, and likewiſe

wiſe an imperfect drawing, with references to its different parts.

I am, SIR,

Your moſt obedient humble ſervant,

RICHARD MOYLE.

Marazion,
Dec. 26. 1794.

Mr. MORE.

THE Society having thought proper (after examining the model above alluded to) to requeſt Mr. Moyle to obtain for them a Drag at large; the following letter was received from that gentleman, in anſwer to one written to him: and a trial having been made of the Drag in London, the Bounty was given to Mr. Joſeph Kneebone, and both the model and Drag are reſerved in the Society's Repoſitory, for the uſe of the Public.

SIR,

SIR,

ON the receipt of your favour of the 16th ult. I desired the smith to make a complete Drag for a two-wheeled carriage, according to the form of those in use in this neighbourhood: he has accordingly finished it in a very workmanlike manner, and which I have sent off by this day's waggon. The smith informs me, that enlarging the wheel, or increasing the length of the shoulders, gives the Drag great advantages, by making it less liable to be choaked with mud, and by giving it a facility to adapt itself to hills of little or considerable steepness, which it does readily, by placing itself less or more forward. It does not appear that any great weight is applied to the wheel; and for that reason, wheels made of cast-iron, with spokes, will answer equally well, are lighter, and less expensive.

The wheel is only seven inches diameter, and the shoulders in this Drag are much longer than

than thoſe in the wooden model, for the reaſons before given. I hope it will be ſufficiently wide to receive the London wheels, which ſhould lie eaſy, without preſſing againſt its upright ſides. By frequent uſe, the part on which the greateſt preſſure is applied, will be worn away, ſo as to injure the machine; but in order to prevent that, it is neceſſary to ſhoe it at its firſt onſet, by fixing on a plate of iron (ſteel I ſhould imagine better) by means of two holes in its bottom, which will always receive a ſimilar piece, when it may be wanted, ſo that the Drag is eaſily kept in good repair.

It is probable, that many improvements may be made in this machine, eſpecially in the ſize and conſtruction of its wheel. Suſpecting that your wheels may be wider than ours, I have had this Drag made wider in its inſtep, its neck longer and ſtouter, and in conſequence its body of a greater length, which, with the chain and additional ſhoe, make it weigh eighty pounds, being

twenty

twenty pounds heavier than any made here before.

I am, SIR,

Your obedient humble ſervant,

RICHARD MOYLE.

Marazion,
Feb. 2, 1795.

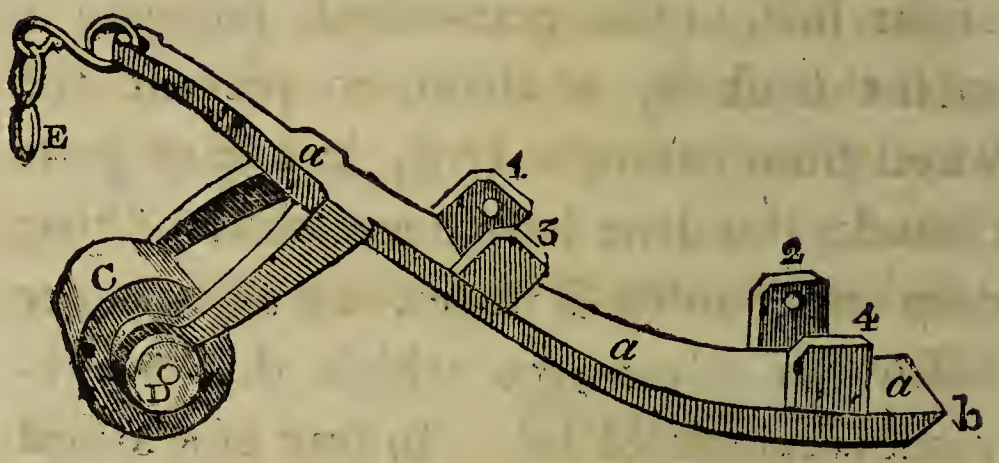
THIS is to certify, that we have lately made uſe of, and applied to our carts, a Wheel-drag, invented by Joſeph Kneebone, of Marazion, in Cornwall, for the effectual ſtopping of two-wheeled carriages in deſcending ſteep hills, and for taking off the increaſed weight thrown on the ſhaft-horſe's back in all deſcents.

This invention, which is ſimple and eaſily applied, anſwers the above intentions in the completeſt manner, ſo as to enable us to convey as much weight down the ſteepeſt hill as on a level, and with as much eaſe to the ſhaft-horſe.

We

We apply the Wheel-drag, on the brow of the hill, to the near-wheel, faſtening it to the ſhaft by a chain, to prevent the wheel from paſſing over it, in caſe of great obſtacles; and we have never obſerved that deep ruts, or looſe ſtones, in any manner leſſen the advantages which this contrivance is calculated for. Inſtead of a loaded cart running on the heels of the ſhaft-horſe on deſcending hills, this Drag, by ſupporting and elevating the wheel, places it on a level, ſo as to oblige the horſe to draw a ſmall burden; and, in ſome inſtances, it is even neceſſary to link the chain-horſe to the dragged-wheel ſide, by which means a weak horſe may be placed within the ſhafts without any riſk or danger. After the cart is deſcended to the bottom of the hill, the drag is taken off, and hung at the under part of the tail of the cart, by two hooks paſſing through the holes in the ſhoulders, 1, 2.

JAMES TAMBLYN,
THOMAS ROSKILLEY,
ROBERT KESKEYS,
} Farmers and Carters.



Deſcription of the Cut of Mr. JOSEPH KNEEBONE's WHEEL-DRAG *for Two-wheeled Carriages.*

a. a. a. A piece of wrought iron, curved to the exact form of a cart-wheel, with the thickeſt part at *b.* on which the weight of the cart reſts.

1. 2. 3. 4. Are ſhoulders which keep the wheel within the Drag, and ſhould be about four inches high.

C. The wheel, made of ſolid iron, nearly as wide as the Drag, ſeven inches in diameter, runs on its axis at D. has a ſtrong ſhoulder, and ſtanding forward reſiſts the ſudden jolts of rough roads.

E. The

E. The chain to be faſtened to the near-ſhaft, to keep the Drag properly under the wheel, which from jerks might be apt to paſs over the Drag, and leave it behind: this is a proper precaution, though ſeldom wanted if the Drag is well conſtructed.

In the ſhoulders 1. 2. are ſhewn holes, by which the Drag is hung on hooks, at the under part of the tail of the cart, when out of uſe.

REWARDS

BESTOWED BY THE

SOCIETY,

FROM OCTOBER, 1794,

TO JUNE, 1795.

REWARDS

BESTOWED IN

AGRICULTURE.

Class 1. TO SAMUEL KILDERBEE, Esq. for having planted ten acres with Acorns, the GOLD MEDAL. See page 119.

Class 57. To the Right Hon. Lord BROWNLOW, for having planted twenty-six acres with Osiers, TWENTY POUNDS. See page 130.

Class 58. To JOHN PHILLIPS, Esq. for having planted upwards of six acres with Osiers, TEN POUNDS. See page 135.

To SAMUEL CRAWLEY. Esq. for having planted four

acres with Oſiers, on land obtained from the River Trent, the SILVER MEDAL. See page 141.

Claſs 75. To THOMAS RAWLINSON, Eſq. for having planted ninety-two thouſand one hundred and ninety-one Timber-trees, the GOLD MEDAL. See page 153.

Claſs 117. To Mr. JOHN BALL, for having cured ninety-ſeven pounds of Rhubarb, of Britiſh growth, the GOLD MEDAL. See page 178.

Claſs 128. To Mr. HENRY HARPUR, for improving Waſte Moor Land, the SILVER MEDAL and TWENTY GUINEAS. See page 182.

To Mr. JOHN JENKINSON, for improving Waſte Rocky Land, the SILVER MEDAL and EIGHT GUINEAS. See page 188.

To

To Mr. JOHN MIDDLETON, for an account of his improved courſe of Crops on Strong Land, the SILVER MEDAL. See page 195.

IN CHEMISTRY.

To Mr. ARCHER WARD, for his invention of a method to ſecure the health of the workmen employed in manufacturing White Lead, the GOLD MEDAL. See page 221.

IN POLITE AND LIBERAL ARTS.

Claſs 189. To Miſs HARRIETT LETITIA WATTS, for Drawings, after Prints by Bartolozzi, the GOLD MEDAL.

To Miſs FRANCES ELEANOR SIMPSON, for a Drawing of the Bignonia, the SILVER MEDAL.

To Miſs ELIZABETH CHRISTIANA FANSHAWE, for a Landſcape after Nature, the SILVER PALLET. Subject, View on the Tamer, in Cornwall.

Claſs 191. To JOHN THOMAS BARBER, for a Drawing, the SILMEDALLION. Subject, Narciſſus, from a caſt, in the Society's Great Room, after the Statue of Narciſſus, by John Bacon, Eſq. R. A.

Claſs 194. To Mr. JOHN JAMES MASQUERIER, for a Drawing of Outlines after Plaſter, the LESSER SILVER PALLET. Subject, the Laocoon.

Claſs 199. To Mr. CHARLES CRANMER, for an Hiſtorical Drawing, the GREATER SILVER PALLET. Subject, the caſting the Accuſers of Daniel into the Den of Lions.

To

To Miſs SUSANNA WATTS, for Feather-work and Needle-work, the SILVER MEDAL and TEN GUINEAS.

IN MANUFACTURES.

To Mr. JOHN ANTIS, for his further improvement of the common Spinning-Wheel, FIFTEEN GUINEAS. See page 233.

IN MECHANICKS.

To Mr. JOHN FOULDS, for his Model, ſhewing an improvement of the method of cutting Piles under water, the GOLD MEDAL. See page 241.

To Mr. WILLIAM BOWLER, for his improved Churn, THIRTY GUINEAS. See page 250.

To WILLIAM WELLMANS, for his model of a Fly-crane in-

intended to prevent accidents in Walking Wheel-cranes, FIFTEEN GUINEAS; a Model of which is reserved in the Society's Repository.

To Mr. JOSEPH RIDLEY, for his improved Printing-press, FORTY GUINEAS. See page 243.

To Mr. JOSEPH KNEEBONE, for his Drag for two-wheeled Carts, TWENTY GUINEAS. See 254.

PRESENTS

RECEIVED BY THE

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SINCE THE PUBLICATION OF THE TWELFTH VOLUME OF THESE TRANSACTIONS.

With the names of the DONORS.

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A Pamphlet, entitled, A Letter to the Critical Reviewers, from Mr. William Renwick.

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MODELS.

HENRY SHADWELL, Eſq.

A Model of a Cannon.

Mr. MARCH.

A Model of a Pump, and

A Model of a Wind-dial.

A CATALOGUE

OF THE

MODELS AND MACHINES,

Received ſince the Publication of the Twelfth Volume of the Society's Tranſactions, with the Numbers as they are arranged, in the Claſs to which they belong.

AGRICULTURE. CLASS I.

No. LXXXI. A MODEL of a Drill-Plough, for Turneps, preſented by Mr. Ramſden, of Carlton-hall, near Workſop.

CHEMISTRY. CLASS II.

VII. A Model, ſhewing a Method to ſecure the Health of the Workmen employed in manu-

facturing White-Lead, by Mr. Archer Ward, of Derby. See page 229.

MANUFACTURES. CLASS III.

XXXI. A common Spinning-wheel, with further improvements, by Mr. JOHN ANTIS, of Fulneck, near Leeds. See page 233.

MECHANICKS. CLASS IV.

CLVI. An improved Churn, by Mr. William Bowler, of Cambridge. See page 250.

CLVII. A Drag for a two-wheeled Cart, by Mr. Joſeph Kneebone, of Marazion, Cornwall. See page 254.

CLVIII. A Model of an improved Printing-Preſs, by Mr. Joſeph Ridley. See page 243.

CLIX. A Model in braſs of a Walking-Wheel Fly-Crane, by Mr. Wellmans, of Featherſtone-ſtreet, Moorfields.

CLX. A Model of a Machine for cutting off Piles under water, by Mr. John Foulds, Engineer to the London-Bridge Water-works. See page 241.

CLXI. A Model of a Cannon, presented by Henry Shadwell, Esq. of Beverley, Yorkshire.

CLXII. A Model of a Pump, and

CLXIII. A Model of a Wind-Dial, presented by Mr. March, of the Strand.

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AND

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OF THE SEVERAL

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Elected March 23d, 1795.

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PLACE the Print from the Statue of Narciſſus, as the Frontiſpiece to the Volume.

The Print of Mr. Crawley's Oſier Holts, to face page 141.

The Print of Mr. Archer Ward's Machine for preventing Duſt ariſing in the Manufacture of White Lead, to face page 229.

The print of Mr. Foulds's Machine for cutting Piles under Water, to face page 241.

The Print of Mr. Joſeph Ridley's Printing Preſs, to face page 243.

The Print of Mr. William Bowler's improved Churn, to face page 253.